THE IRON TRADE REVIEW

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RAIL ORDERS HALTED BY SPECIFICATIONS

Pennsylvania Allotment Not Accepted---New York Central Tonnage Will Soon be Booked --- General Tendency is Toward Lower Prices of Finished Products

The last two weeks of November have not been marked by favorable developments in the iron trade; in fact, the trend of events has been decidedly disappointing and there is no indication of improvement during the remaining month of this year. On account of decreased demand upon the mills for shipments of finished product, the United States Steel Corporation has recently blown out and banked several additional furnaces and is now operating about 55 per cent of its actual blast furnace capacity represented by 119 stacks. Pig iron stocks of the Corporation have been adjusted to these conditions and are holding practically constant at a conservative level. Stocks in the middle west including 59 furnaces, outside of the Corporation, amounted to about 830,000 tons, Nov. 15, an increase of about 10,000 tons in two weeks.

Price Discussion

In connection with recent meetings of iron and steel manufacturers in New York, there has been much discussion in manufacturing centers in regard to the wisdom of reducing prices and the prevailing opinion, especially at Pittsburg, is that prices will be reduced on most finished lines. It is understood that some of the railroads are taking a very positive stand against placing any more orders for cars until they can get them at lower figures. The best obtainable information is, however, that at the meetings the hope of sustaining prices was not abandoned.

Shapes

Sales of structural material during November amounted to between 40,000 and 50,000 tons, about half of which went to the leading interest. Bids have been received on 6,400 tons for the new post office to be erected in connection with the Pennsylvania station in New York City. The proposed new city hall for Pittsburg will require about 7,000 tons, and Cleveland's new city hall, for which ground has recently been broken, will require about 5,000 tons. The American Bridge Co. has taken the contract for the Hoge building, Seattle, 1,700 tons, and the Brown-Ketcham Iron Works, Indianapolis, has taken 750 tons for the Anheuser-Busch warehouse at St. Louis. The city of Cleveland is in the market for 3,500 tons of cast iron pipe, and it is expected that 5,000 to 6,000 tons of pipe will soon be called for for the metropolitan New York district. Some very low prices are being made on bar iron, and prices of spikes and bolts are being cut.

Rails

The Pennsylvania Railroad Co. has officially announced the making of its allotment for 150,000 tons for delivery next year, but it has developed that the orders have not been accepted by the different steel companies and there is likelihood of prolonged negotiations in regard to the specifications before the tonnage is actually entered. New York Central tonnage will probably be on the books before that of the Pennsylvania, and is expected to amount to about 100,000. The present situation in regard to the Pennsylvania, recalls the conditions which prevailed when that system's orders were given in May, 1907, and February, 1908, for 1908 delivery, but were not accepted by the rail makers.

Pig Iron

The pig iron market lacks snap, and the general tendency of prices is downward. The southern market seems to be headed for $11. Birmingham, for No. 2 for first half as well as for first quarter, on which that figure is now freely made. The General Electric Co. is inquiring for from 5,000 to 6,000 tons of foundry grades, and 1,500 tons of low phosphorus for its Lynn and Schenectady plants. Its previous inquiry for 6,500 tons for Erie has not developed into an order. At Chicago, $16 can now be done on No. 2 foundry and malleable. A small lot of Virginia iron sold at a low price by a furnace preparing to blow out has had a bad effect in the east, but this will probably be temporary.

Plates and Sheets

The Pittsburg Steamship Co. has been authorized to proceed with the construction of two large ore freighters for 1911 delivery, which require about 7,600 tons of shapes and plates. The plate market is not firm, and 1.35c, Pittsburg, can be done without much difficulty. Although some of the independent sheet manufacturers have orders for from four to five weeks ahead, others are hungry for business, and on black sheets are cutting $2 below prevailing quotations. A good volume of business in tin plate has been booked this month for delivery over the early part of next year. The crude steel market shows considerable irregularity in prices, and shipments from mills in the Pittsburg and Youngstown district sometimes net the mills less than $22.50 for Bessemer billets and $28 for forging billets.

WORLD'S IRON MARKETS

PITTSBURG

Pennsylvania Rail Order—Tin Plate and Wire Orders Improve.

Office of THE IRON TRADE REVIEW,
510 Park Building, Nov. 29.

The formal allotment by the Pennsylvania Railroad Co. of 150,000 tons of steel rails for 1911 delivery was the most important development in the iron and steel market in this territory during the week. It is understood that the major portion of this tonnage will be used in renewals and that additional rails will be ordered in case the company undertakes any large amount of extension work in its 1911 construction program. While the allotment of the order to the different steel companies has not been announced, it is understood that the orders will be divided among the United States Steel Corporation, Cambria Steel Co., Lackawanna Steel Co., Pennsylvania Steel Co., and the Bethlehem Steel Co. The company's rail orders for the last three years were: 1910, 200,000 tons; 1909, 135,000 tons and 1908, 147,000 tons.

In other branches of the local trade the closing week of November has been an exceedingly quiet one. New business in tin plate and wire products exceeded that of the preceding month. Some of the independent tin mills are booked to capacity over first half and actual bookings of wire and nails at slightly higher prices during the past ten days show a gain. The steel bar market also made a better showing in November, a number of the western consumers having specified for their full requirements over first quarter Plates, shapes and bars are quotable at 1.40c, Pittsburg, and bar iron has been sold at this figure notwithstanding low prices quoted in some sections.

Furnace interests are showing a disposition to cover for their coke requirements as far ahead as possible. Several sliding scale contracts have been made in this market, one of which calls for 6,000 tons a month for the two years beginning Jan. 1. The pig iron market has been extremely quiet, the only important transaction being the purchase of 6,000 tons of basic by the Colonial Steel Co. for first half delivery.

Local makers report only a slight decline in tonnage involved in orders for semi-finished steel entered on mill books in November, as compared with the preceding month. No car awards have been announced in this market, although some of the larger lines have practically decided upon their requirements. Developments in the structural steel market have been of an encouraging nature. Heavy tonnage is involved in new projects on which estimates are being prepared, including a number of railroad bridges. The proposed new city hall to be built in Pittsburg will require approximately 7,000 tons of structural steel.

The price of heavy melting steel has reached a new low level for the year, small sales having been made in this market at $13.50. Lower quotations are also being made on other grades of scrap.

Pig Iron.—The pig iron market has been extremely quiet during the past week. Some of the inquiries noted recently are still pending, but no important new inquiries have appeared and consumers are not willing to buy very far ahead. As a result, trading has been confined chiefly to small lots to cover actual needs. Prices show no material change, although no definite price for basic has been established during the past few days on account of conflicting statements and secrecy concerning recent transactions. Some of the contracts covering the third quarter will expire within the next three or four weeks and heavier inquiry is expected in the very near future to cover the early months of next year.

The principal transaction in this market during the week was the purchase of approximately 6,000 tons of basic by the Colonial Steel Co. for equal delivery over the first six months of 1911. On account of the secrecy regarding this transaction, the trade is inclined to believe that the iron went at a low price. It is also intimated that the purchase was involved in a trade deal. From one source it is reported that the delivered price was $14, or $13.55 at a nearby furnace. Notwithstanding unconfirmed reports of low prices, most of the basic manufacturers are asking $13.75, valley, for prompt delivery, while others will not quote on the small amount of business appearing.

The Bessemer situation is unchanged, no important sales having been reported. One or two exchange deals have been made, but these have no effect upon the market, which is quotable at $15, valley, for prompt and first quarter shipment. Inquiries for No. 2 foundry iron include one for 1,500 tons and another for 400 tons for delivery early next year. Practically all trading during the week has been for small lots, prices ranging from $13.75 to $14, valley. Reports of a sale of a round tonnage of foundry for first half at a low price have not been confirmed. There is little demand for malleable and gray forge. We quote the market as follows:

Pig Iron Prices.

(Prompt Shipment.)

Bessemer, valley	$15.00
Bessemer, Pittsburg	15.90
Basic, valley	13.50
Basic, Pittsburg	14.40
No. 2 foundry, Pittsburg	14.65
Gray forge, Pittsburg	13.90
Malleable, Pittsburg	14.15

(First Quarter.)

Bessemer, valley	$15.00
Bessemer, Pittsburg	15.90
Basic, valley	13.50
Basic, Pittsburg	14.40
No. 2 foundry, Pittsburg	14.90
Gray forge, Pittsburg	13.90
Malleable	14.40

Ferro-Alloys.—On account of the increased demand for 50 per cent ferro-silicon for delivery over first quarter and first half, prices appear to be slightly firmer this week. Scattered sales have been made on a basis of $57, Pittsburg, for delivery over the first six months of 1911, although this figure is being shaded 50 cents a ton on prompt delivery business. Trading in ferro-manganese is confined to small lots.

We quote ferro-manganese at $38.75, Baltimore, for prompt, and $39, Baltimore, first half of 1911. The freight rate from Baltimore to Pittsburg is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $56.50 to $57, Pittsburg, for prompt and first half; 12 per cent, $25; 11 per cent, $24; 10 per cent, $23, f. o. b. Jisco and Ashland furnaces. The freight rate to Pittsburg is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

Plates.—While no large awards for plates have been made, there is a more optimistic feeling regarding the future of this market, and the indications are that some of the inquiries for cars which have been pending for some time will be acted upon in the near future. The fact that the Pennsylvania Railroad Co. has covered for its steel rail requirements is regarded as an indication that the company will enter the market shortly for freight cars. Reports that this company will erect a new car plant at Altoona, Pa., are not confirmed. The Great Northern Railroad Co. is figuring on some freight cars, but little definite information has been given out. Local car shops are gradually curtailing the output of their plants and it is likely that some of the smaller plants will be closed next month. Some sellers are still shading 1.40c, Pittsburg. We quote the market as follows.

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.40c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ¼ inch to and including 3-16 inch plate on thin edge, 0.10c; under 3-16 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Sheets.—Some of the independent sheet manufacturers in this territory are running from four to five weeks behind in shipments and are not accepting business at today's prices for delivery beyond the next 60 days. On the other hand, several local mills have comparatively little tonnage on their books and are still quoting as low as 3.15c, Pittsburg, on galvanized sheets No. 28 gage. Some of the large western jobbers are specifying more freely and there is heavier demand for sheets on the part of manufacturing interests. Efforts are being made by some interests to cover for their full requirements over first half at today's prices, but local makers will not accept business on this basis. We quote base prices as follows, with $1 a ton added as the delivered price in the Pittsburg district:

Blue annealed sheets, No. 10 gage, 1.60c to 1.65c; box annealed sheets, No. 28 gage, 2.15c to 2.20c; galvanized sheets, No. 28 gage, 3.15c to 3.20c; painted roofing sheets, 1.55c to 1.60c per square for No. 28 gage, 2½-inch corrugation; galvanized roofing sheets, 2.75c to 2.80c per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—A large volume of business in tin plate has been booked this month for delivery over the early part of next year, two or three of the independent plants having all the business on their books that they can take care of during the first six months of 1911. Some of the larger plants, however, are not booked to more than 75 per cent of their capacity for first half and are not inclined to accept additional business for that period at this time. Production at present shows a sharp decline as compared with September and there is comparatively little new business coming in for December shipment. The base price on tin plate is as follows:

Coke tin plate, 10-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburg district.

Rails and Track Material.—The Pennsylvania Railroad Co. has awarded contracts for 150,000 tons of steel rails for 1911 delivery and it is stated that other large trunk lines will in all probability make some awards within the next few weeks. The fact that the company has ordered 150,000 tons instead of 100,000 tons, as it was generally understood the revised list called for, has caused considerable comment and it is believed that some of the other railroad companies will now place larger awards than expected a few days ago. There is a fair volume of business in light rails appearing and local rail mills are operating on practically the same basis as last month. Three or four fairly large contracts for spikes and track bolts have been placed and it is understood that some of the orders for spikes were placed at 1.55c, Pittsburg, for delivery over the first quarter of next year. Track bolts have been sold slightly under 2.30c, Pittsburg. We quote the market as follows, the base price on open-hearth rails being 1.34c, per pound, at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, $26.50 to $27, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.55c to 1.60c, Pittsburg; hand spikes, 1.65c to 1.70c, Pittsburg; track bolts, 2.30c, Pittsburg.

Steel.—Orders for semi-finished steel entered on mill books during the month of November are about the same as for the preceding month. During the past 10 days there has been a fair volume of business booked for shipment prior to Jan. 1 and prices apparently are firmer than during the early part of the month. In addition to scattered sales of Bessemer sheet bars at $24.50, makers' mill, Pittsburg, for prompt shipment, several inquiries involving from 500 to 1,000 tons each are noted. Comparatively few sales of Bessemer billets are noted and the market is quotable at $23 to $23.50, makers' mill, Pittsburg. While no actual inquiries for first quarter and first half of 1911 have appeared as yet, large consumers are sounding the market and it is expected that buyers and sellers will reach an agreement in the very near future regarding prices for delivery beyond Jan. 1. There is little demand for open-hearth steel and prices are not very firm. A sale of 1,000 tons of forging billets at $29.50, Pittsburg, is noted. We quote the market as follows:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $23 to $23.50, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets, $23, Pittsburg. Forging billets are quotable at $29 to $29.50, Pittsburg. Bessemer sheet and tin bars are quoted at $24.50, and open-hearth sheet bars are quoted at $24 to $24.50, makers' mill, located within the $1, Pittsburg, freight limits.

Hoops and Bands.—While new business in hoops and bands is for small lots to cover urgent needs, the total tonnage booked during the past week compares favorably with that of the same period last month. Makers report slightly heavier specifications against running contracts and some of the cooperage interests are negotiating for first half requirements. Prices are firm. We quote the market as follows:

Hoops in carload lots, 1.50c; in less than carload lots, 1.65c; bands, 1.40c, base, with net extras, as per standard steel.

Merchant Bars.—The market on steel bars continues to make a good showing as compared with other branches of the local trade, although total bookings for the week have been somewhat lighter than for the preceding week. A number of western consuming interests have specified for their requirements over first quarter. Notwithstanding reports of extremely low prices on bar iron in some sections of the country, sales have been made in Pittsburg territory this week at 1.40c, Pittsburg. In several instances, railroads have asked for prices on bar iron for delivery up to July 1, 1911, but so far no contracts of this character have been made. Demand for shafting continues light and comparatively little tonnage is being booked. We quote the market as follows:

Common iron bars, 1.35c to 1.40c, Pittsburg; Bessemer and open-hearth steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3-inch, 1.50c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 55 per cent in carloads and 50 per cent

in less than carloads, delivered in base territory.

Muck Bar.—There is comparatively little demand for muck bar and prices are somewhat lower, one or two small lots having been sold at $29, Pittsburg. We quote the best grades of muck bar at from $29 to $29.50, Pittsburg.

Structural.—Developments of the past week have been more encouraging than at any time this month. Plans are being prepared for the proposed new city hall to be erected in Pittsburg at a cost of $1,500,000, which will require approximately 7,000 tons of steel. Bids will open tomorrow on the new building to be erected at Beaver Falls, Pa., by the Standard Sanitary Mfg. Co., which will require 1,000 tons of steel. Local fabricators are figuring on some fairly heavy railroad bridge work, details of which will probably be made public within the next few weeks. The Pennsylvania Railroad Co. will erect two bridges, which will require 450 tons of steel. The McClintic-Marshall Construction Co., Pittsburg, has been given a general contract for a new three-story warehouse to be built at Fairmont, W. Va., for the Fairmont Mining Machinery Co. This company has also taken the contract for the Nineteenth ward (Pittsburg) school building, which will require 300 tons of steel. The American Bridge Co. will furnish 300 tons of structural steel for the Bessemer & Lake Erie railroad and 400 tons for the Erie railroad. We quote the market as follows:

Beams and channels, 15 inches and under, 1.40c; over 15 inches, 1.50c; zees, 1.40c; tees, 1.45c; angles, from 3 to 6 inches, 1.40c; over 6 inches, 1.50c; universal and sheared plates, 6¼ inches wide and wider, 1.40c.

Merchant Pipe.—While no large awards have been made in this market for some time, official reports for November show that the total tonnage booked compares favorably with that of October, which was slightly heavier than for September. During the past week local gas companies placed orders aggregating about 450 tons of small sizes of steel pipe. Heavy tonnage is involved in one or two proposed gas pipe lines in the west, but it is not likely that definite action will be taken for some time. Demand for iron pipe is not heavy and production is being curtailed slightly. Prices are firm. We quote the following official discounts in carload lots, subject to the usual preferential discount to the large buyers, merchant pipe, where specified, being offered in from ⅛ to 6 inches:

Iron and Steel Basing Prices.

	Steel. Butt weld.		Iron.	
	Black.	Galv.	Black.	Galv.
⅜, ¼, ⅜ inch	72	58	68	54
½ inch	75	63	71	59
¾ to 1½ inch	79	69	75	65
2 to 3 inches	80	70	76	66
		Lap weld.		
2 inches	76	66	72	62
2½ to 4 inches	78	68	74	64
4½ to 6 inches	77	67	73	63
7 to 12 inches	75	59	71	55
EXTRA STRONG, PLAIN ENDS.				
		Butt weld.		
⅜, ¼, ⅜ inch	69	59	65	55
½ inch	74	68	70	64
¾ to 1½ inch	78	72	74	68
2 to 3 inches	79	73	75	69
EXTRA STRONG, PLAIN ENDS.				
		Lap weld.		
2 inches	75	69	71	65
2½ to 4 inches	77	71	73	67
4½ to 6 inches	76	70	72	66
7 to 8 inches	69	59	65	55
9 to 12 inches	64	54	60	50
DOUBLE EXTRA STRONG, PLAIN ENDS.				
		Butt weld.		
½ inch	64	58	60	54
¾ to 1½ inch	67	61	63	57
2 to 3 inches	69	63	65	59
DOUBLE EXTRA STRONG, PLAIN ENDS.				
		Lap weld.		
2 inches	65	59	61	55
2½ to 4 inches	67	61	63	57
4½ to 6 inches	66	60	62	56
7 to 8 inches	59	49	55	45

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

Boiler Tubes.—Specifications against running contracts for locomotive boiler tubes are fairly heavy. New business in merchant boiler tubes has fallen off somewhat, and the market as a whole is less active than last month. We quote the market as follows:

	Steel.	Iron.
1 to 1½ inch	49	43
1¾ to 2¼ inch	61	43
2½ inch	63	48
2¾ to 5 inch	69	55
6 to 13 inch	60	43

2½ inch and smaller, over 18 feet, 10 per cent net extra.
2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destination east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

Wire Products.—Total bookings of wire and nails in November show a healthy gain over the preceding month, and the market today is firmer than at any time during the past six weeks. Practically all trading is being done on a basis of $1.50 on plain wire and $1.70 on wire nails, low quotations noted several days ago having been withdrawn. Some mills are three to four weeks behind on shipments and are not accepting business at today's prices for delivery beyond Feb. 1. Some of the large jobbing interests are negotiating for heavy tonnage for first quarter delivery, but no large awards have been made so far. Cut nails are firm with $1.65, Pittsburg, as the minimum. We quote the market as follows:

Wire nails, jobbers' carload lots, $1.70; retailers' carload lots, $1.75; cut nails, jobbers' carload lots, $1.65; painted barb wire, jobbers' carload lots, $1.70; retailers' carload lots, $1.75, with 30c for galvanizing; plain wire to jobbers in carloads, $1.50, and to dealers, in carloads, $1.55; polished staples, $1.70; galvanized staples, $2.

Wire Rods. — Notwithstanding reports of low prices on wire rods, Bessemer and open-hearth rods have been sold in this market during the past week in lots of from 500 to 1,000 tons at $28.50 to $29, Pittsburg, respectively. It is understood, however, that one or two small mills have quoted $28, Pittsburg, on Bessemer rods. We quote $28.50, Pittsburg, on Bessemer, and $29, Pittsburg, on open-hearth rods.

Coke.—Furnace interests are showing a disposition to cover for their full requirements as far ahead as possible and in addition to several large contracts placed in this market recently, heavy tonnage is under negotiation. A local interest closed today for 6,000 tons of furnace coke a month for a period of two years, beginning Jan. 1, 1911, on a sliding scale basis. Two other companies, which require from 20,000 to 30,000 tons a month, are now negotiating for their full requirements over 1911. There is practically no trading for forward delivery at a flat price, although prices on prompt furnace coke are firmer than two weeks ago. Considerable interest is centered in the proposition submitted to Connellsville coke producers for their entire output of furnace and foundry coke for a period of six months or one year, the coke to be disposed of through a Pittsburg selling agency. It is expected that a meeting of operators will be called to consider this proposition, although definite arrangements have not been made. Production is being curtailed and a still further curtailment is expected next month. We quote standard Connellsville furnace coke, for prompt shipment, at from $1.45 to $1.55, ovens, and for first half at from $1.75 to $1.90, ovens. On high grade Connellsville foundry coke, we quote from $2 to $2.05, ovens, for prompt delivery; for first half, from $2.25 to $2.50, ovens. The Connellsville *Courier's* figures for the week ending Nov. 19, show 26,288 active ovens with an output of 326,056 tons, compared with 26,368 active ovens and a production of 327,860 tons the previous week.

Old Material.—The market on old material appears to have lost all the ground gained during the early part of the month and considerable weakness is shown in some sections. Consumers are not willing to buy for delivery beyond Jan. 1, even at low prices. It is expected, however, that a large portion of the tonnage involved in the railroad lists to be issued this week will go direct to consumers. Heavy melting scrap reached a new low level for the year this week, sales being reported as low as $13.50. Bundled sheet scrap is down 25 cents a ton. A similar reduction is noted in the price

of machine shop turnings, while quotations on cast borings are 50 cents a ton lower than a week ago. We quote, gross tons, delivered in the Pittsburg district, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, as follows:

Heavy melting scrap	$13.50 to 14.00
Rerolling rails	15.00 to 15.50
Bundled sheet scrap	10.00 to 10.50
Iron axles	24.00 to 24.50
Old iron rails	15.00 to 15.25
No. 1 wrought scrap	14.75 to 15.25
Old car wheels	13.00 to 13.50
Low phosphorus	17.50 to 18.00
Machine shop turnings	9.00 to 9.50
Cast borings	8.50 to 8.75
No. 1 cast scrap	14.00 to 14.25
Malleable	14.00 to 14.50
Stove plate	11.00 to 11.50

CHICAGO

Conditions Not Very Encouraging—Some Low Prices Made.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Blk., Nov. 29.

The last week in November finds the iron and steel market in the central west in a somewhat spotted condition. In some lines, conditions are very favorable, while in others, notably rails and pig iron, the volume of business is light. The lighter finished products are enjoying a better demand than crude materials and heavy lines. The volume of the sheet business continues to hold up very well, and satisfactory reports are forthcoming from the wire trade and tube manufacturers. Some low prices are being made on bar iron and one concern at least in this market is openly quoting 1.32½c, Chicago. Rail sales are light and the western trunk lines are showing reluctance in placing their orders for 1911 requirements. Competition in spikes and track bolts is severe and standard railroad spikes have been shaded to 1.65c, Chicago, and track bolts to 2.20c. The structural business is one of the most encouraging features of the market, from a tonnage standpoint, and over 28,000 tons of structural material are involved in building contracts now pending in Chicago.

Pig Iron.—The month of November taken as a whole, will show a larger volume of sales than any of the immediately preceding months. During the last few days, however, a reaction has been experienced and the pig iron market in this territory is quiet at the present time. The comparatively heavy business transacted during the month does not seem to have had the slightest effect on general conditions in this market. The reason that the activity during November has not had a more perceptible stiffening effect on prices and a rejuvenating influence on the market is stated by some to be found in the large stocks of pig iron in existence and to comparatively heavy production. Most pig iron buyers in this market are confining their purchases to small lots and some ordinarily heavy buyers have made small purchases recently. The American Radiator Co. is reported to have purchased 2,500 tons of southern iron at a close price and the leading Harvester interest bought 1,500 tons of Southern No. 3 for first quarter delivery at $10.50, Birmingham. In contrast to this, sales of 3,750 tons of southern No. 2 at $11.50, Birmingham, for first half, are noted. Sales of southern iron at less than $11.50 for first half cannot be confirmed. A number of southern furnaces are holding out for this figure for first quarter also. Nevertheless, there is strong evidence that $11.00 is being done in this market for the first quarter and this price seems to be backed up by actual transactions. The so-called official quotations on northern iron are being shaded and $16.00, Chicago, can be done for No. 2 foundry and malleable, for first quarter shipment, although northern furnaces are reluctant to go into the second quarter unless protected by premiums.

We quote the market, f. o. b. Chicago, as follows:

(This year's delivery.)

Lake Superior charcoal	$18.00 to 18.50
Northern foundry No. 2	16.00 to 16.50
Southern foundry No. 2	15.35 to 15.85
Southern silveries, 5 per cent silicon	16.85 to 17.35
Jackson Co. silveries 8 per cent	19.40
Malleable Bessemer	16.00 to 16.50
Alabama basic	15.35 to 15.85

(First quarter delivery.)

Lake Superior charcoal	18.50 to 19.00
Northern foundry No. 2	16.00 to 16.50
Southern foundry No. 2	15.35 to 15.85
Southern silveries, 5 per cent silicon	17.35 to 17.85
Malleable Bessemer	16.00 to 16.50
Alabama basic	15.35 to 15.85

Billets.—The market is quiet. Open-hearth forging billets in car lots are quoted $27.00, Chicago, but concessions may be obtained on attractive business.

Merchant Bars.—The volume of business in bar iron is showing some improvement, but there is considerable evidence of price cutting. Some makers are openly quoting 1.32½c, Chicago, and while it is understood that prices of 1.30c have been named, it is doubtful of these are based on actual transactions. The bottom of the market for bar iron at present is about 1.32½c, Chicago, with the bulk of the business being taken at 1.35c. The leading interest reports a slight gain in current bookings of steel bars and it is known that agricultural interests are specifying freely and are making some new contracts. The store business in bar iron and steel is fair.

We quote, Chicago delivery, as follows:

Bar iron, 1.32½c to 1.40c; hard steel bars, re-rolled, 1.45c to 1.55c; soft steel bars and bands and small shapes, 1.58c to 1.63c, base; hoops, 1.73c to 1.83c; planished or smooth finished tire steel, 1.78c to 1.83c, base; iron finished tire steel, 1.73c, base; smooth finished machinery steel, 1 inch and larger, 2.43c; spring steel, 2.28c; crucible spring steel, 2.78c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 55 per cent off the list for carload lots, and 50 per cent off for less than carload lots, carload freight allowed to points in base territory.

On iron and steel from local stock, we quote as follows:

Bar iron, 1.80c to 1.90c, per pound base; soft steel bars, 1.80c to 1.90c per pound base; soft steel hoops, 2.10c to 2.20c, full extras.

Structural Material. — The total amount of structural material involved in building contracts now pending in the city of Chicago amounts to approximately 28,280 tons. It is understood that arrangements have been made for financing the Burnham building on Sherman street and Jackson boulevard, which will alone require 12,000 tons. The United States Gypsum Co., Chicago, has let contracts to the Indiana Bridge Co., Munsing, Ind., for two factory buildings, 680 tons, one to be located at Alabastine, Mich., and the other at Rochester, N. Y. The American Bridge Co. has a contract for the Hoge building, Seattle, 1,750 tons. The Duluth, Winnipeg & Pacific Railway has let 450 tons of bridge material to the Wisconsin Bridge Co. A stock house for the Anheuser-Busch Brewing Co., St. Louis, 750 tons, will be fabricated by the Brown-Ketcham Co., Indianapolis. Loweth Bros., Denver, have taken 100 tons for a warehouse for the McMurtrie Mfg. Co., Denver. Prices of structural material are being well maintained.

We quote, mill prices for structural shapes, f. o. b. Chicago, as follows:

Beams and channels, 15 inches and under, 1.58c to 1.63c. For extras, see Pittsburg report.

Store prices, f. o. b. Chicago, are as follows:

All angles, 3 inches and larger, including 6 inches, $1.80 to $1.90 per 100 pounds; angles over 6 inches, $1.90 to $2 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.80 per 100 pounds, base; channels, 3 inches and larger, $1.80 per 100 pounds, base.

Rails and Track Supplies. — The trunk lines are slow coming into the market and no rail business of consequence has been placed recently. It is understood that the Great Northern order for 1911 requirements will be about 70,000 tons. The leading interest sold 8,000 tons of standard rails and 30,000 kegs of spikes last week. Competition in spikes and bolts is growing more severe and standard railroad spikes have been shaded to 1.65c, f. o. b. Joliet.

See Pittsburg report for prices on standard sections.

On rails and track supplies for Chicago delivery, we quote, as follows:

Light rails, carloads, 40 to 45-pound, 1.16c to 1.20½c; 30 to 35-pound, 1.19½c to 1.24c; 16, 20 and 25-pound, 1.20½c to 1.25c; 12-pound, 1.25c to 1.29½c.

Light section relayers, 45 pounds and under, subject to inspection, $21 to $23; standard section re-laying rails, subject to inspection, $23.50 to $24.

Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.65c to 1.70c; smaller size spikes, 1.70c, base; track bolts with square nuts, 2.20c to 2.30c, base.

Plates.—Shading on sheared plates has practically disappeared and this is one of the most encouraging features of the market at present. Local plate mills are running on easy schedules. No car business is reported in this market.

We quote, Chicago delivery, as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches wide, 1.58c to 1.63c. For extras, see Pittsburg report.

Store prices, f. o. b. Chicago, are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, 1.80c to 1.90c; from 72 inches to 96 inches wide, 1.90c to 2c; 3-16 inch up to and including 60 inches wide, 1.90c to 2c; 72 inches, 2.15c to 2.25c; No. 8, up to 60 inches wide, 1.95c to 2.05c. Flange quality and heads, 25c extra.

Sheets. — The leading interest is maintaining the price of sheets, although independents are shading mill quotations about $1.00 a ton. Store prices, however, are being maintained better than was the case a little while ago.

We quote, store prices at Chicago, as follows:

Blue annealed No. 10, 2.10c to 2.20c; No. 12, 2.20c to 2.30c. Box annealed, No. 28, 2.75c to 2.85c. Galvanized, No. 28, 3.65c to 3.75c.

For mill prices, see Pittsburg report. Freight to Chicago, 18 cents.

Wire Products.—The wire business seems to be recovering from the slump which was evident early in the month and the fourth week in November showed a larger volume of business than any of the three preceding weeks. Low prices on plain wire and wire nails have been withdrewn and quotations in the local market are firm.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers' less than carload lots, $2.03; painted barb wire, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers' less than carload lots, $2.03; with 30c for galvanizing; plain wire to jobbers, $1.68; plain wire, retailers' carload lots, $1.73; staples, bright, $1.88.

Merchant Pipe and Tubes.—There are no particular features in the local pipe market at present. Jobbers are not quoting below the card prices and business is fair in volume. Considerable building is in prospect in the Chicago market which is expected to maintain the demand for merchant pipe during the winter.

We quote iron and steel pipe and tubes out of store, f. o. b. Chicago, as follows:

Iron and Steel Pipe Basing Prices.

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
⅛-¼ inch	68.2	53.2	62.2	47.2
⅜ inch	71.2	58.2	65.2	52.2
½ inch	76.2	65.2	71.2	60.2
4½-6 inches	73.2	62.2	69.2	58.2
7-12 inches	70.2	53.2	66.2	49.2
EXTRA STRONG PLAIN ENDS.				
½ inch	69.2	62.2	....	....
⅝ inch	74.2	67.2	....	....
¾ inch	64.2	....	....	....
DOUBLE EXTRA STRONG.				
½ inch	57.2	49.2	....	....
⅝ inch	62.2	54.2	....	....
¾ inch	52.2	40.2	....	....

Tubes.

	Lap weld steel. Per cent.	Charcoal iron. Per cent.	Shelby seamless. Per cent.
1 inch	..	..	57½
1¼ to 2¼ inch	50	35	35
2¾ to 5 inch	60	48	46

Old Material.—The market is quiet and there is no incentive to melters to purchase beyond their actual requirements, although the demand for heavy melting steel is fairly good. In fact, the steel melters form the principal support to the market at present and their purchases are having a slightly stiffening effect on the general list. Stocks of scrap available in this territory, however, are very heavy and the existence of such large quantities of material prevents any buoyancy in the market. The Chicago, Rock Island & Pacific Railway is offering a list of 2,620 tons, closing Nov. 30.

We quote the market, f. o. b. Chicago, as follows:

GROSS TONS.

Old car wheels	$12.00 to 13.00
Old iron rails	15.75 to 16.25
Rerolling rails (5 ft. and over)	15.00 to 15.50
Old steel rails (3 ft. and under)	13.00 to 13.50
Frogs, switches and guards	12.25 to 12.75
Heavy melting steel	12.25 to 12.75
Shoveling steel	11.75 to 12.25

NET TONS.

No. 1 R. R. wrought	$12.00 to 12.50
No. 2 R. R. wrought	11.00 to 11.50
Arch bars and transoms	14.50 to 15.00
Knuckles, couplers and springs	11.50 to 11.75
Shafting	16.50 to 17.00
Iron car axles	19.00 to 19.50
Steel car axles	19.00 to 19.50
Locomotive tires	16.00 to 16.50
Dealers' forge	10.50 to 11.00
Pipes and flues	9.00 to 9.50
No. 1 cast, 150 lbs. and less	12.00 to 12.50
No. 1 busheling	9.75 to 10.25
No. 2 busheling	8.00 to 8.25
No. 1 boiler cut	8.75 to 9.25
Boiler punchings	14.25 to 14.75
Cast and mixed borings	5.00 to 5.50
Machine shop turnings	7.00 to 7.50
Railroad malleable	11.00 to 11.50
Agricultural malleable	11.00 to 11.50
Stove plate and light cast scrap	11.00 to 11.50
Angle bars, splices, etc., iron	13.25 to 13.75
Angle bars, steel	11.50 to 12.00

CLEVELAND

Moderate Sales of Pig Iron.—Finished Material Sags.

Office of THE IRON TRADE REVIEW,
Penton Building, Nov. 29.

Iron Ore.—The Great Lakes Protective association, at its Monday meeting, put itself on record as opposed to extending insurance after midnight, Nov. 30. No applications for extension of insurance have been received by the underwriters, and it is not probable that any extensions will be asked. The demand for vessels for December is light, and is confined almost entirely to the coal trade. The last ore cargo will be loaded tomorrom.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $5; Mesabi Bessemer, $4.75; old range non-Bessemer, $4.20; Mesabi non-Bessemer, $4.

Pig Iron.—A number of sales of from 200 to 1,000 tons of foundry grades have been made. One Cleveland interest is selling on a basis of $14.25 delivered for No. 2 foundry for first half, and another interest at 25 cents higher. In some cases, foundries have purchased from both companies, in order to obtain different kinds of iron for their mixtures. We note a sale of 1,000 tons of No. 2 foundry for first half delivery at $11.50 Birmingham, but the iron was high in phosphorus, and usually commands a slight premium. The foundry which bought this iron is also in the market for 1,000 tons of northern. We quote delivered in Cleveland, this year, as follows:

No. 1 foundry	$14.75
No. 2 foundry	14.25
No. 2 Southern	15.35
Gray forge	14.00
Bessemer	15.90
Lake Superior charcoal	18.00
Jackson Co. 8 per cent silvery	19.00

Coke.—In spite of the dull conditions, prices are well maintained. One company declines to sell below $2.50 for foundry coke for first half, while others are willing to sell at $2.25 for the full year.

Connellsville furnace coke, $1.50 to $1.55 for prompt delivery, and $1.70 to $1.75 on contracts for this year and $1.80 to $1.90 for first half next year. Connellsville foundry coke, $2 to $2.10 for prompt, and $2.25 on contract for this year, and $2.25 to $2.50 for first half of next year.

Finished Material.—The market shows a sagging tendency on some products, and no improvement is noted on any line. The plant which the Ford Plate Glass Co. will erect at Toledo will eventually require about 2,500 tons of structural material, of which 1,000

tons will be placed at an early date. The city of Cleveland is in the market for 3,500 tons of cast iron pipe, on which bids will be received up to Dec. 12. Bar iron is dull and prices are irregular. There is keen competition on plates, and 1.35c Pittsburg can be done. The sheet market presents a rather peculiar aspect; while some interests have orders to keep them busy for four or five weeks, others are hungry for orders, and some very low quotations have been made in exceptional cases. Weakness in the crude steel market has reappeared and as low as $28, Pittsburg, on forging billets and $23 on Bessemer rolling billets has been done.

The new city hall, for which ground was broken about 10 days ago, will require about 5,000 tons of structural steel, on which bids will probably be asked in about six months.

Old Material.—Prospects are not bright for further renewed buying of scrap for use in local mills for several weeks at least. An embargo was yesterday placed on the Otis Co.'s plant, its yards and tracks being filled with material. Two other local mills are in much the same situation and they are refusing material of which some days ago they seemed very much in need. A lowering of some prices appears imminent, in the minds of some brokers, but so far there have not been sales enough this week to change quotations, f. o. b. Cleveland, as follows:

Old iron rails	$16.00 to 17.00
Old steel rails (under 6 ft.)	14.00 to 14.50
Old car wheels	12.50 to 13.00
Old steel boiler plate	10.50 to 11.00
Malleable iron (railroad)	13.25 to 13.75
Steel axles	19.50 to 20.00
Malleable iron (agricultural)	11.50 to 12.00
Heavy steel	13.00 to 13.50
Country mixed steel	11.75 to 12.25

We quote, in gross tons, as follows:

No. 1 R. R. wrought	$13.00 to 13.50
No. 1 busheling	11.00 to 11.50
No. 1 machine cast	12.50 to 13.00
Axle turnings	9.00 to 9.50
Machine shop turnings	6.50 to 7.00
Grate bars	10.50 to 11.00
Pipes and flues	9.50 to 10.00
Tank iron	9.00 to 9.50
Sheet iron	5.00 to 5.50
Wrought drilling	6.50 to 7.00
Cast borings	6.50 to 7.00

CINCINNATI

Southern Pig Iron Prices Softening—Sales of Furnace Coke.

Office of THE IRON TRADE REVIEW,
Room 11, Blymyer Bldg., Nov. 29.

Pig Iron.—A fair sprinkling of sales has resulted during the week, but, generally considered, the situation is a little softer, and inquiry less marked than it was several weeks since. Southern prices do not appear to be holding as firmly as they were and the tendency is gradually toward $11, Birmingham, for first half delivery. Iron is said to have been offered for prompt delivery as low as $10.75, Birmingham, but no well authenticated sales have been reported at this figure. It is said that several Alabama furnaces are still maintaining the $11.50 quotation on next year's business, yet it is possible to obtain standard brands for delivery through the first quarter, and even as late as June on an $11, Birmingham, basis. Prospective buyers continue to hold aloof from what would generally be considered attractive prices, and show little interest in the market further than to buy for early requirements. A number of instances are cited where no general inquiry is sent out to the trade, but the buying has been done in a quiet way, the total of which aggregates an immense tonnage, and which in a measure prohibits keeping an accurate account of sales made. The situation in the north is apparently unchanged, and prices on northern iron are holding firmly with slight variation. No sales have been reported below the prevailing figure of $14, Ironton, which, it is said, will apply through the first six months of next year. One of the local foundries is in the market for 450 tons of analysis, divided between northern and southern. Another melter in the same territory wants an indefinite tonnage, for next year's requirements. An Indiana manufacturer is in the market for 400 tons of southern, another melter in the same territory is asking for 600 tons of both northern and southern, while still another is asking for prices on 1,200 tons divided between northern and southern, all for next year's delivery. Some of these have been pending for several weeks, and may not be closed until next year. There is a sale reported of about 2,000 tons of malleable that went into St. Louis territory, price not revealed. A sale of 2,200 tons of southern foundry grades into Illinois territory was made for January to July shipment. A melter in the east bought 500 tons of gray forge, and one in southern territory 500 tons of gray forge, said to have been at prevailing prices. No large inquiries are reported as pending, and no sales of any magnitude have taken place during the week, yet the usual run of medium sales has perhaps been about normal. We quote prices based on freight rate of $3.25 from Birmingham and $1.20 from Ironton, as follows:

	1910.	First quarter, 1911.
Southern foundry No. 1	$14.75	$15.25
Southern foundry No. 2	14.25	14.75
Southern foundry No. 3	13.75	14.25
Southern foundry No. 4	13.75	14.25
Southern No. 1 soft	14.75	15.25
Southern No. 2 soft	14.25	14.75
Southern gray forge	13.75	14.25
Northern No. 1 foundry	15.70	15.95
Northern No. 2 foundry	15.20	15.45
Northern No. 3 foundry	14.70	14.95
Jackson county 6 per cent silicon		18.20
Jackson county 8 per cent silicon	19.20	19.70
Jackson county 10 per cent silicon		20.20

Coke.—Of the furnace inquiries reported as pending last week, one for approximately 15,000 tons per month for the year 1911 has been closed. There are furnace inquiries yet pending that perhaps aggregate 40,000 tons per month, but buyers and sellers are apparently unable to get together on price. A sale of 6,000 tons for the first six months of next year, as a fill in, is reported as made to one of the furnaces. Demand for foundry coke is light, yet the foundries are said to be taking contract shipments promptly and in some instances more than estimated requirements. We quote prices from the leading coke producing districts as follows:

	Prompt Shipment.	During year.
Connellsville district:		
Foundry coke	$2.00 to 2.25	$2.25 to 2.50
Furnace coke	1.50 to 1.60	1.75 to 1.85
Wise county district:		
Foundry coke	2.00 to 2.25	2.15 to 2.25
Furnace coke	1.50 to 1.65	*Sliding [scale basis.
Pocahontas district:		
Foundry coke	2.10 to 2.25	2.10 to 2.25
Furnace coke	1.65 to 1.75	1.75 to 1.85
New river:		
Foundry coke	2.50 to 3.25	2.60 to 3.25
Furnace coke	2.20 to 2.30	2.20 to 2.30

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16 2-3 per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material.—Plates, shapes and bars are quotable at 1.40c, Pittsburg. Specifications received during the week have been light and trade is a little more quiet. The mills are said to be running slightly below normal capacity, and general conditions are less active. The Louisville & Nashville railroad is this week taking bids on underframes and other material for 600 steel hopper and 600 gondola cars.

Old Material.—The market shows no radical change and in harmony with pig iron is a little more quiet and prices somewhat softer. Mills are not doing any special buying, yet are taking contract shipments as offered. Prices do not show any material change and according to dealers are as follows:

Old No. 1 R. R. wrought, net tons	$10.50 to 11.00
No. 1 machinery net	10.00 to 10.50
No. 1 busheling, net	10.00 to 10.50
Old iron rails, gross	16.00 to 16.50
Old steel rerolling, gross	15.50 to 16.00
Old short lengths, gross	14.50 to 15.00
Old iron axles, net	18.00 to 18.50

Heavy melting scrap, gross	11.00 to 11.50
Stove plate, net	8.00 to 8.50
Heavy turnings, net	6.00 to 6.50
Cast borings, net	4.50 to 5.00
Car wheels	13.00 to 13.50
Grate bars	8.50 to 9.00

Rome furnace, at Rome, Ga., which has been running for some time on charcoal iron, has been for the last 30 days making silver coke iron.

PHILADELPHIA

Pig Iron Largely in Small Lots—Big Government Contracts.

Nov. 28.

Pig Iron.—Aside from the periodical purchases of the cast iron pipe makers and an occasional good-sized transaction, the market in this territory is made up largely of small-lot sales at present. This class of business in 500 tons and less is well distributed, and in the aggregate, makes a considerable tonnage. Under such conditions of trade, little variation in price is developing, although on round lots for satisfactory terms of delivery for the furnaces, standard grades of eastern Pennsylvania foundry iron are now obtainable at $15.50, delivered, for No. 2X, which is lower than the minimum that has prevailed for some time past. One lot of several thousand tons for first quarter has just been closed at $15.65, delivered. Other brands of eastern Pennsylvania foundry irons not so firmly established can be secured around $15.25, delivered. In Virginia, the clearing up of yards of several furnaces, preparatory to their blowing out, has produced some prices under the general level of that district. Some of the higher silicon grades have been sold at $12.75, furnace, and $12.50 is reported. The representative Virginia makers are holding for $13, furnace, for practically all silicon irons for first quarter, and not much of the lower grades is available there. The Princess furnace was blown out this week, and the Goshen stack is preparing to go out soon. The principal purchases of the week in Philadelphia territory have been by the cast iron pipe companies. One of these consumers closed for about 6,000 tons of gray forge and No. 3 for first quarter, while another took 3,000 to 4,000 tons of No. 3, and is negotiating for several thousand tons of gray forge. This iron was divided between northern and southern makers upon the basis of about $14 50, delivered, for the former, and about $10, Birmingham for gray forge, or the latter at $14.20, delivered, this district. There is some anticipation of shipments by these buyers showing a favorable consumptive demand for the low grades. Some mill forge is moving at from $14.25 to $14.75, delivered, according to buyer's location. There has been nothing further done in basic in the east this week. The first quarter market on this grade is still to be fixed positively on a round lot, as the recent representative sales have been made only through January. These sales, as reported, were at a price of $14.75, delivered. There is no active inquiry at present. In low phosphorus some good-sized negotiations are under way, but nothing except small quantities were sold this week. The price of standard low phosphorus remains at about $22.50, delivered, Philadelphia.

We quote for prompt and first quarter shipment to Philadelphia and vicinity, as follows:

No. 1X foundry	$16.00 to 16.25
No. 2X foundry	15.50 to 15.75
No. 2 plain	15.00 to 15.50
Standard gray forge	14.25 to 14.75
Basic	14.50 to 14.75
No. 2X Virginia	15.80 to 16.30
No. 2 Southern	15.00 to 15.50
Low phosphorus	22.50

Finished Material.—The market continues to await active buying from the railroads, and conditions are dragging, as there is no change in the situation in other directions. The Philadelphia & Reading railroad is expected to buy about 30,000 tons of rails.

Government contracts are attracting much attention from the mills this week. Bids are going in Dec. 1 for the construction of two colliers which will require about 9,000 tons of plates and 4,500 tons of shapes, and for one battleship, which will call for upwards of 10,000 tons of steel. In addition, the government will close for about the same amount of steel for a second battleship, which it will build in its own yards. Two submarine boats were placed this week, requiring a small tonnage. Bids went in for about 3,000 tons for the Baltimore Bargain House. A building for the Packard Motor Car Co., this city, will require about 600 tons of Bethlehem sections. The Pennsylvania railroad is inquiring for some small bridges in eastern territory. Locomotive builders are figuring upon considerable business. Prices are being taken this week on the 66 locomotives for Japanese roads, and some of the western lines have tentative business up. The Baldwin Locomotive Works has booked ten for the Seaboard Air Line.

Sufficient billet business is coming in to keep eastern producers working at about 50 per cent of capacity. Sheet mill operations in the east are irregular. Recent quotations of bar iron in the east have been as low as 1.25c, mill, as this branch of the trade is extremely dull.

We quote, for delivery in Philadelphia and vicinity, as follows:

Structural shapes, 1.55c to 1.60c; steel bars, 1.55c to 1.60c; iron bars, 1.32c to 1.37c; 4 x 4-inch open-hearth rolling billets, $26, eastern mill; forging billets, $28, eastern mill.

Old Material.—An absence of genuine consumptive demand is apparent in the market and what modest lots are being closed for by leading buyers are largely the result of attractive prices. Heavy steel sales of 1,000 tons are the exception. A lot of about 1,000 tons of mixed steel from San Francisco, which was brought to this market by boat, sold for $12.50, delivered. On rejections consumers have been obtaining some grades of steel as low as $12, delivered. For selected steel, the market is about $13, delivered. The railroad wrought market is not above $16, delivered. Other grades are correspondingly low and with a light buying volume. We quote gross tons, delivered at eastern Pennsylvania consuming points, as follows:

Old steel rails (rerolling)	$15.75 to 16.25
Heavy melting steel	12.75 to 13.25
Old car wheels	13.75 to 14.25
Old iron car axles	25.00 to 26.00
Old steel car axles	20.00 to 21.00
No. 1 railroad wrought	16.00 to 16.50
Wrought pipe	12.75 to 13.00
Cast borings	8.75 to 9.00
Wrought turnings	8.50 to 9.00
Heavy cast scrap	14.00 to 14.50
Railroad malleable	13.50 to 14.00
Stove plate	10.50 to 11.00

NEW YORK

Pennsylvania Rail Order is Placed—Pig Iron is Quiet.

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Nov. 29.

Iron Ore.—As the year is drawing to a close, foreign ore shipments are falling off considerably and the total receipts in November have probably not exceeded 150,000 tons, of which in the neighborhood of 100,000 tons was Cuban ore. The trans-Atlantic shipments in November were about 30,000 tons and about an equal amount was received from Newfoundland. There promises to be a further falling off in shipments in December. The ore market in the east is stagnant.

Pig Iron.—Less animation is to be noted in the pig iron market in this territory, which arises from the fact that present sales are made up largely of the small lot variety. Buying is spasmodic, as there is no general contracting movement in evidence and consumers here and there are filling out their requirements for the first quarter, and in some cases, for the first half, but conservatism generally marks these negotiations. The inquiry is not so active and shows fewer instances of 1,000 tons and more lots, which were quite freely in evidence

several weeks ago. The largest new inquiry to come out is that of the General Electric Co. for 5,000 to 6,000 tons of foundry and about 1,500 tons of low phosphorus iron for first half delivery at Lynn, Mass., and Schenectady, plants. The Delaware, Lackawanna & Western railroad has bought 2,000 tons of two grades for first quarter shipment at Scranton, Pa., the business going to northern makers. A recent order booked in this territory is for 3,500 tons of foundry irons for forward shipment for a New Jersey furnace manufacturer. This company originally inquired for 1,000 tons. The general business of the week has been made up in 500-ton and less quantities. The instability of prices in some directions is illustrated through the effect produced by a comparatively small lot of Virginia iron offered by a furnace at concessions in order to clean up its yards, preparatory to its blowing out. This iron has been offered as low as $12.50, furnace, for No. 2X in some cases, and in others at $12.75, while for the lower silicon, $12, furnace, has been done. This incident has caused considerable comment and apparently has disturbed Virginia conditions temporarily, although the leading makers there are holding firmly at $13, furnace, for No. 2X for prompt and first quarter shipment. There is some further price easiness on Schuylkill valley grades over several weeks ago. The price situation is decidedly mixed, as some makers individually continue to make advances in the face of unsettled conditions. A central Pennsylvania furnace posted advances in its schedule during the week. We quote for prompt and first quarter shipment, as follows:

Northern foundry No. 1	$15.75 to 16.00
No. 2X foundry	15.50 to 15.75
No. 2 plain	15.00 to 15.25
No. 2 Virginia	15.50 to 15.80
No. 2 southern foundry	15.25 to 15.75
Malleable	15.75 to 16.25
Gray forge	14.50 to 14.75

Ferro-Alloys.—Sales of ferro-manganese this week have been small and have aggregated less than 1,000 tons, the largest of which was about 250 tons. The $38.50, seaboard, price continues more open and this is now applicable to first quarter as well as prompt shipment. The inquiry for ferro-manganese is light. There is some fresh inquiry for 50 per cent ferro-silicon, which continues rather scarce for prompt shipment, and is holding firmly in price. We quote 80 per cent ferro-manganese for prompt and forward shipment at $38.50 to $39, seaboard, and 50 per cent ferro-silicon at $56 to $56.50, Pittsburg.

Cast Iron Pipe.—There continues a good inquiry for spring delivery and with some makers this is of a volume larger than usual. The general market, however, shows no evidence of much improvement. Public lettings are not numerous, which is usual at the end of the year. Hartford, Conn., has placed 1,500 tons and New Bedford, Mass., will close Dec. 8 on 1,500 tons. A new lot of 5,000 to 6,000 tons for metropolitan work is expected out shortly. We quote 6-inch pipe at from $21 to $21.50, f. o. b. New York, in carload lots.

Finished Material.—The principal development of the week in finished lines has been the announcement of the Pennsylvania rail allotment for 1911. The delay in the placing of the order has been due largely to deliberation over specifications and a number of changes are proposed, which appear a little radical to some rail makers.

The finished market in the east lacks much tone at present and appears to be drifting, awaiting marked developments. Structural lettings are rather light and during November aggregated from 40,000 to 50,000 tons, of which about half went to the leading interest. Prices, as a whole, are holding quite firmly.

The Norfolk & Western has advanced the date of receiving bids upon its bridge work inquiry of 10,000 to 12,000 tons and took figures this week on 3,500 tons for the main line requirements. Bids will be taken on the balance some time next month. The Phoenix Iron Works and the Cambria Steel Co. together have booked 400 tons for the Lehigh Valley railroad. No decision has yet been reached on the 4,500 tons for the Boston Elevated railroad.

In commercial work, bids were entered this week on 6,400 tons for a post office building to be erected in connection with the new Pennsylvania railroad station in New York City. The additions to the Sloane store at Forty-seventh street and Fifth avenue, have been re-designed and are again up, requiring about 2,500 tons. The American Bridge Co. has 1,700 tons for the Hoge building, Seattle; the Brown-Ketcham Iron Works, 750 tons for the Anheuser-Busch warehouse at St. Louis; the McClintic-Marshall Construction Co., 300 tons for a Pittsburg school. It is reported that the 2,500 tons for the Washington Irving High school in Brooklyn has gone to an independent fabricator.

We quote, New York delivery, as follows: Angles, 3 to 6 inches x ¼ inch and heavier, 1.56c to 1.61c; beams, 3 to 15 inches, 1.56c to 1.61c; tees, 3 x ¼ inch and heavier, 1.56c to 1.61c; plates, carload, tank, 1.56c to 1.61c; boiler steel, 1.66c to 1.71c; marine boiler, 1.96c to 2.01c; bar iron, 1.37c to 1.42c; soft steel bars, 1.56c to 1.61c.

Old Material.—The volume of trading in old material is more restricted, due both to a light consumptive demand and to the indisposition of many of the yards to let go of their stocks at the present low prices. Buyers are quite indifferent except to apparent bargains. Steel consumers are reluctant to offer more than $12.50, delivered in eastern Pennsylvania. Recent small sales of city wrought are noted at $15.50, delivered. A recent offering of 400 tons of Panama scrap brought a considerable advance in price, but this was due to the bulk of the lot being in shape for immediate mill use. Usually this scrap is so mixed and large that it has to be assorted and cut to desired lengths. We quote gross tons, prices New York dealers will pay at tidewater, with the exception of cast scrap, which has a local demand, as follows:

Old car wheels	$12.00 to 12.50
Old iron axles	22.50 to 23.00
Old steel shafting	16.50 to 17.00
Heavy melting steel	11.00 to 11.25
No. 1 R. R. wrought	13.50 to 14.00
Iron track scrap	12.50 to 13.00
Wrought pipe	10.00 to 10.50
Cast borings	6.75 to 7.00
Wrought turnings	6.50 to 7.00
Heavy cast scrap	12.50 to 13.00
Railroad, malleable	12.50 to 13.00
Stove plate	9.00 to 9.50
Grate bars	9.00 to 9.50

The Edison Electric Illuminating Co., of Boston, is endeavoring to secure all manner of information from all over the world relative to the use of electric light or power in every line of trade or manufacture, to the end that it will be possible to arrange for the displays at the Electric Exposition in Mechanics' building, Boston, during the month of October, 1912. The widest co-operation is asked.

ST LOUIS

Inquiries Scarce and Sales Confined to Small Lots.

Nov. 28.

Pig Iron.—One of the largest car manufacturers in the St. Louis territory is asking for prices on malleable Bessemer. With this exception, inquiries are scarce and only for small amounts, but local sales agents are firm in the conviction that the outlook is good for real business within the near future. The most important sale reported last week was 2,500 tons of malleable Bessemer for first half delivery and printed in THE DAILY IRON TRADE REVIEW of Friday. The purchase was made by a local melter. A sale has been made to a foundry in Iowa of 1,200 tons of iron with 2 to 2½ per cent silicon and very low phosphorus at $11.50 for first half de-

livery. A price of $11 can still be obtained for delivery over the remainder of the year on southern No. 2, but it is doubtful if better than $11.50 could be done for shipment over the first quarter, though $11 might be obtained in some quarters up to April 1. Northern iron is quoted at $14.50, furnace for first quarter shipment. Our prices on southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$15.50 to 16.00
Southern No. 2	15.00 to 15.50
Southern No. 3	14.50 to 15.00
Southern No. 4	14.00 to 14.50

Coke.—Inquiries are slow about coming in, and sales seem to be confined to small quantities. Our prices remain unchanged as follows:

We quote 72-hour Connellsville foundry grades, $2.35 to $2.50 for whole of 1911; 72-hour foundry, $2 to $2.25, on tracks and for immediate delivery; 48-hour Connellsville furnace, $1.60 to $1.85; best 72-hour Virginia foundry, $2 to $2.35; 48-hour Virginia furnace, $1.60 to $1.85. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Old Material.—Quotations on scrap iron remain nominally as follows, with no improvement in business, and little expected in the immediate future.

Old car wheels	$13.50 to 14.00
Old iron rails	14.50 to 15.00
Rerolling rails (4 ft. and over)	14.25 to 14.50
Old steel rails (2 ft. and under)	13.00 to 13.50
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	24.50 to 25.00
Frogs, switches and guards	12.50 to 13.00
Heavy melting steel	12.00 to 12.50
Shoveling steel	12.00 to 12.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.75 to 12.25
No. 2 R. R. wrought	10.75 to 11.25
Arch bars and transoms	14.50 to 15.00
Knuckles, couplers and springs	12.00 to 12.50
Shafting	15.00 to 15.50
Iron car axles	19.00 to 20.00
Steel car axles	19.00 to 20.00
Locomotive tires	16.00 to 16.50
No. 1 country wrought	10.00 to 10.50
Pipes and flues	9.25 to 9.75
No. 1 cast, 510 lbs. and less	12.50 to 13.00
No. 1 busheling	10.75 to 11.25
No. 2 busheling	7.00 to 7.50
No. 1 boiler cut	9.25 to 9.75
Boiler punchings	11.00 to 11.50
Cast and mixed borings	5.00 to 5.50
Machine shop turnings	7.25 to 7.75
Railroad malleable	10.00 to 10.50
Agricultural malleable	9.00 to 9.50
Stove plate and light cast scrap	9.50 to 10.00
Angle splice bars, iron	13.50 to 14.00
Angle splice bars, steel	12.50 to 13.00

BUFFALO

Pig Iron Prices Unchanged, But Sales Fall Off.

Nov. 29.

Pig Iron.—Taken on the whole, the pig iron market shows little improvement this week, and predictions of better business following elections are not being made good very fast. The last few days have seen a falling off in sales, and, while the aggregate of inquiries has not been as large, some interests are in the market for fair tonnages. One of the largest is the General Electric Co., which is taking figures for an additional 6,500 tons, for the most part foundry iron, to be used at two of its plants. A number of fair-sized inquiries previously reported are still pending, and there is a fair demand for small lots of iron ranging from car loads to 500 tons; but the number of these smaller inquiries has not been as large as in some other weeks. The output of the district has been considerably reduced in the last few weeks. One of the stacks of the Tonawanda Iron & Steel Co. went out of blast a few days ago, and will not be re-lighted until conditions improve. The blast furnace of the New York State Steel Co. is out of blast for relining. No further curtailment of production is looked for in the immediate future, at least. The furnaces are shipping at a remarkably good rate in view of the situation at the present time. The whole market shows a lack of excitement. The advanced scale of prices announced a short time ago still holds, and furnace managers say that business is being booked at the new prices, and that there will be no reduction, as the prices which prevailed before the advance were unprofitable. We quote f. o. b. furnace, as follows:

NO 1X	$15.00 to 15.50
No. 2X	14.50 to 15.00
No. 2 plain	14.50 to 14.75
No. 3	14.50 to 14.75
Gray forge	14.00 to 14.50
Malleable	14.75 to 15.50
Basic	14.75 to 15.25
Charcoal	17.75 to 18.25

Finished Products.—Business has been a shade better in the last week, though the improvement is by no means marked, and may be only temporary. Bar steel has been fairly active and specifications against contracts made by the agricultural implement people have been coming in. Wire and wire products are among the strongest lines. Tin plate is active, manufacturers beginning to cover for first quarters, and quite a little business has been taken in this district during the last week. No really large structural lettings have been reported, but there have been quite a number of smaller jobs and some large ones are in prospect. In January the state will let the general contract for a $2,000,000 prison to be built at Poughkeepsie. A new building for the Buffalo orphan asylum calling for about 500 tons is soon to be figured by Eisenwein & Johnson, who are the architects. The Henry Shenk Co., Erie, Pa., has been awarded the general contract for a hotel, 10 stories, 82 x 165 feet, to be built in Erie. It will require about 1,200 tons. No definite announcement has been made concerning the large hotel which, it is reported, E. M. Statler, of Buffalo, will build at Cleveland, and it is probable that nothing will be done until spring. Canadian business has been very good.

Old Material.—The scrap market has been very dull. Local foundries are buying a little cast scrap, and a few small sales of wrought scrap are reported, but there has been practically no demand for steel scrap. All the yards are well stocked. What business has been done recently has been mostly for outside the district and the demand outside has fallen off considerably in the last week. We quote, gross tons, f. o. b. Buffalo, as follows:

Heavy melting steel	$12.25 to 12.50
No. 1 railroad wrought scrap	14.50 to 15.00
No. 1 railroad and machine cast scrap	13.50 to 14.00
Old steel axles	17.00 to 18.00
Iron axles	23.00 to 24.00
Car wheels	13.75 to 14.25
Railroad malleable scrap	13.75 to 14.00
Machine shop turnings	6.75 to 7.00
Cast iron borings	5.00 to 5.50
Low phosphorus steel scrap	17.00 to 17.50
Old iron rails	15.50 to 16.00
Tank iron	10.75 to 11.00
Sheet iron	6.50 to 7.00
Stove plate	12.00 to 12.50
Pipes and flues	10.25 to 10.75
Grate bars	11.50 to 12.00
Boiler plate	11.00 to 11.50

BIRMINGHAM

Eleven Dollar Quotation Becoming More General.

Nov. 29.

Pig Iron.—During the week just closed, several of the producing interests here made sales for first quarter on a basis of $11, Birmingham, but so far as can be learned these were only to favored customers and in most cases the buyer had iron already due to come to him from the producer on a higher price schedule. Still, the sales thus made have had a tendency to establish the $11 basis for Birmingham for the first quarter of 1911. There was one sale of 1,000 tons at $11.25 at the furnace for that delivery, while still another interest booked 2,000 tons at $11.50, based on analysis specifications. Spot iron held firm at $11, and in some cases $11.25 was obtained. Special brands continue to bring a better price, and there were a number of small sales the past week of special high silicon irons at from $12 to $14, Birmingham, such high silicons, however, being required for special work. No producer seems inclined to break below $11 even for prompt shipment.

Stocks are not showing any material change. All told, considering the tonnage booked and the fact that spot iron has not weakened at all for some months, the feeling is really more optimistic.

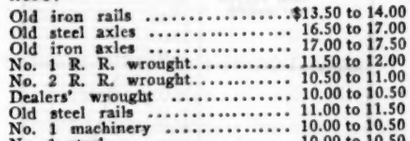
Some additional sales of charcoal iron have been made, but in the main for shipment the early part of 1911. There is no change in charcoal iron prices. The production is limited and the cost remains high, due to scarcity of charcoal and high grade, low phosphorus brown ores.

Cast Iron Pipe.—The pipe foundries are accumulating some stocks, but considering the general conditions and the fact that they have all been operating at a good rate all the year, this accumulation is a negligible quantity. The usual shut down incident to the holidays next month will more than offset any stocks above normal. The Birmingham pipe manufacturers feel that their outgoing tonnage for 1910 will be most satisfactory when a final summing up of the showing shall have been made.

Prices remain unchanged, with water pipe, 4-inch to 6-inch, $19.50 to $20.50, with 8-inch to 12-inch, $19. These prices are f. o. b. cars here, carloads. Usual differential of $1 up for gas pipe.

Old Material.—The past week has been a fair one with dealers and there is nothing of the pessimistic note to be heard from any of them here. Their stocks are in better shape, and there are no heavy stocks anywhere in the south likely to be dumped on the market. Quotations are nominally on the following basis on board cars here:

Old iron rails	$13.50 to 14.00
Old steel axles	16.50 to 17.00
Old iron axles	17.00 to 17.50
No. 1 R. R. wrought	11.50 to 12.00
No. 2 R. R. wrought	10.50 to 11.00
Dealers' wrought	10.00 to 10.50
Old steel rails	11.00 to 11.50
No. 1 machinery	10.00 to 10.50
No. 1 steel	10.00 to 10.50
Old standard car wheels	12.50 to 13.00
Light castings, stove plate	8.50 to 9.00



Steady Imports of Pig Iron—More Finished Material Demand.

Nov. 23.

Consumers of pig iron in this territory are hopeful over the outlook for the ending of the year 1910, but are doing little active buying at this time. Some dealers report a demand above normal, while others declare the situation the dullest they have ever seen it. The commodity is being imported steadily, but not in very large quantities. Practically all the regular liners plying in the Oriental trade are bringing medium-sized consignments for various dealers along Puget sound and at Portland. The lumber trade is still very uncertain, having a like effect on the foundries and machine shops. According to statements of officials of the Western Steel Corporation, there is a good demand on the plant at Irondale for finished material. They further report that present indications are that the plant will have more business during the next three months than at any time in its history, due to the fact that the company is increasing the number of varieties of manufactured steel. The foundry has just begun turning out steel castings for public consumption, and there is a good demand for these, as, heretofore, the consumers have been compelled to send east for a majority of such necessities.

We quote in gross tons, foreign iron ex ship Puget sound or Columbia river, domestic f. o. b. Pacific coast terminal, as follows:

No. 1 English Jarrow	$23.50 to 24.00
No. 1 Chinese Hanyang	23.50 to 24.00
No. 1 Cleveland	23.50 to 24.00
English Doncaster	23.50
Eglinton	23.00

First quotations on pig iron, first quarter next year:

Glengarnock	24.00
Cleveland	23.00
English Doncaster	23.00
English Jarrow	23.00
Hanyang	23.00

Sheets.—A reduction of 10 cents all around in the blue annealed and galvanized sheets characterized the market this week. The reduction was unlooked for, but was the natural following of the eastern market of some weeks past. We quote as follows, f. o. b. Seattle: Blue annealed sheets, No. 12, 3.25c; No. 14, 3.20c; No. 16, 3.30c; Nos. 18 to 20, 3.70c; Nos. 22 to 24, 3.75c; No. 26, 3.80c; No. 27, 3.85c; No. 28, 3.90c. Galvanized sheets, Nos. 10 to 14, 3.70c; No. 16, 3.85c; No. 18, 4.10c; No. 20, 4.10c; Nos. 22 to 24, 4.15c; No. 26, 2.30c; No. 27, 4.60c; No. 28, 4.80c; No. 30, 5.25c.

Bars.—Prices are unchanged on bars, and the demand is normal. We quote the following prices for stock on hand: Common iron, 2.20c; soft steel, 2.40c; machinery steel, 2.95c; Norway iron, 4.25c; tees over three inches, 2.85c; tees, angles, channels less than 3 inches, 2.50c.

Wire Products.—At the present time the market on wire and nails is one of the most active branches of the iron and steel trade in this section. The jobbers are ordering heavily, due to the building activity and the fact that the ranchers are now actively engaged in fixing up their farms and enclosing various big tracts. We quote the market as follows: Wire nails, jobbers' carload lots, $2.45; retailers' carload lots, $2.50; retailers' less than carload lots, $2.60; painted barbed wire, jobbers' carload lots, $2.45; retailers' carload lots, $2.50; retailers' less than carload lots, $2.60, with 30 cents for galvanizing; plain wire to jobbers, $2.25; retailers' carload lots, $2.30; staples, bright, $2.45.

Old Material.—The scrap market is dragging along with very little activity in evidence this week. Dealers are picking up small lots here and there, but no deals of especial note were made. We quote:

Foundry scrap, No. 1	$19.00 to 20.00
Foundry scrap, No. 2	15.00 to 17.00
Old car wheels	11.00 to 15.00
Railroad wrought	8.00 to 9.00
Miscellaneous steel scrap	5.00 to 8.00
Grate bars	4.00 to 7.00
Stove plate	11.50 to 14.00

METAL MARKETS.

New York.

Nov. 29.

Copper.—Sentiment in the copper metal trade continues optimistic, but buying during the week has been done on a small scale. It is doubtful if the depressing influences of the stock market will have any effect on those who feel that they have substantial trade facts for their belief that the copper metal market has worked out of the depression of last summer and the early fall. The London warrant market weakened some in sympathy with our decline in security prices, but the price of the metal is unchanged in the local market. Electrolytic copper is held firm at 13c, delivered, 30 days, and at 12.87½c, cash, New York, by the leading interests, and lake at 13c to 13.12½c. Casting copper is 12.62½c to 12.75c.

The London market closed firm, spot at £57 6s 3d, and three months at £58 5s. The exports of copper since Nov. 1 are 26,454 tons.

Tin.—Active manipulation of the pig tin market by the London syndicate has again advanced the prices of all positions up to February to above 37c. On Monday small lots of spot and nearby tin sold at 37.40c, and today, after weakness in the morning, the market closed firm at 37.25c. The demand from consumers has been light.

Friday and Monday the London market was very active. Spot tin was advanced to £170 12s 6d, and three months to £170 15s 6d, on transactions of 1,780 tons during the two days.

There was less activity today and the market closed at recessions.

Arrivals of tin since Nov. 1 aggregate 3,291 tons, and deliveries into do-

mestic consumption are estimated at 3,000 tons.

Lead.—The pig lead market continues firm. The leading interest is asking 4.50c and the outside sellers from 4.50c to 4.52½c. The demand is only fair.

Spelter.—Producers of spelter are not shading the quotation of 6.05c in New York, although some outside metal can be had under that figure. The demand has not increased since prices were advanced.

Antimony.—There is no change in the antimony market. Cookson's is 8.12½c; Hallett's is 7.87½c, and Hungarian is 7.37½c.

St. Louis.

Nov. 28.

Lead and Zinc.—Lead ore reached a top price of $58 a ton in the Missouri-Kansas-Oklahoma district last week, the highest point at which it has been sold since January. The average price paid, however, was $57,69, compared to $55.60 the previous week, when a top price of $56 was realized. St. Louis pig lead was quoted at 4.42½c and was slightly firmer than for the previous week, when the price was 4.40c. The zinc market was little changed, with prices ranging from $46 to $48 a ton on car load lots for 60 per cent qualities. Choice lots brought as high as $51 a ton. The St. Louis spelter market was unchanged at the close of the week when it reached 5.90c. Calamine brought $30 a ton for choice lots, with 40 per cent grades selling from $24 to $27 a ton. The average price for all grades of calamine was $27.88.

Chicago.

Nov. 29.

New Metals.—There is considerable trading in copper for prompt shipment and a moderate amount of business is being taken for delivery during the first quarter of next year. The price of standard desilverized lead in 50-ton lots is being maintained at 4.45c, Chicago, although some off-brands have been offered in this market at 1½c less. Tin is quotable at 38c at present but this price is considered by consumers to be largely the result of artificial manipulation. In general the metal market shows an encouraging tone.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 13⅛c; casting, 13c; smaller lots, ¼ to ⅜c higher. Spelter, car lots, 5.95c to 6c; lead, desilverized, 4.45c, in 50-ton lots; corroding, 25c per 100 pounds higher; sheet zinc, $7.75 list, f. o. b. La Salle, in car lots of 600-pound casks; pig tin, 38c. Cookson's antimony, 10½c; other grades, 9¾c to 10¼c.

Old Metals.—The old metal market has relapsed into quiet although prices of lead and zinc products are somewhat stiffer, based on improvement in the market for new lead, rather than on actual sales of old material. Lead scrap is now quotable 4¼c, Chicago, and zinc scrap, 4¾c. Copper is stationary and brass quiet.

We quote, dealers' selling prices, f. o. b. Chicago, as follows: Copper wire, 11¼c; heavy copper, 11¼c; light copper, 10½c; heavy red brass, 10⅜c; heavy yellow brass, 8c; light brass, 6¼c; No. 1 red brass borings, 9¼c; No. 1 yellow brass borings, 6½c; brass clippings, 8c; tea lead, 3.80c; lead scrap, 4¼c; zinc, 4¾c; tin pipe, 32.5c; tin foil, 29.5c; pewter, 23.5c; electrotype plates, free from wood, 4½c; electrotype dross, 3c; stereotype plates, 4½c; stereotype dross, 3¼c; linotype dross, 3¼c; prime slab zinc dross, $85 per ton.

LOCOMOTIVES FOR NEW YORK CENTRAL.

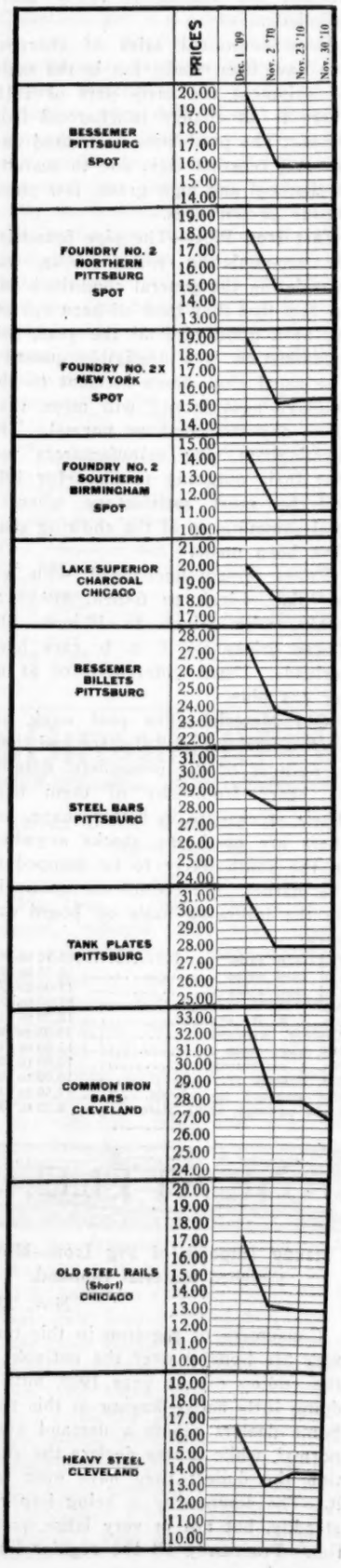
New York, Nov. 30. (By wire.)

The American Locomotive Co. officially announces orders for 275 locomotives from the New York Central lines for 1911 delivery. Thirteen typs of locomotives are included. These orders were received during the past three months, but this is the first official statement of their being received.

Mr. Topping's Denial.—The truth of reports which have been in circulation in Birmingham, Ala., of a possible consolidation of interests of the Republic Iron & Steel Co., the Sloss-Sheffield Steel & Iron Co., and the Southern Iron & Steel Co., have been positively denied by John A. Topping, chairman of the board of the Republic company, so far as concerns the Republic company. He declared that the recent visit of himself and President Guthrie to Birmingham on an inspection tour had no further significance.

Receiver Appointed.—On the application of Daniel Bacon, representing the bondholders of the West Jersey Tube Works, Bridgeton, N. J., the court has appointed B. Frank Hires as receiver under bond of $5,000. On behalf of the bondholders, Mr. Bacon stated that his clients held bonds to the value of $250,000 and that since 1904 no interest had been paid on these bonds. He declared the company insolvent.

PRICE CHART



GREAT PENSION FUND

To Be Administered for Employes of the Steel Corporation.

New York, Nov. 30. (By wire.)

Plans have been consummated, to begin Jan. 1, 1911, to pay pensions from the joint United States Steel and Carnegie pension fund, established last spring, by action of the Steel Corporation and Andrew Carnegie. This fund was established for the purpose of paying old age pensions from the income of the fund to employes of the Steel Corporation and its subsidiaries. For this purpose, the corporation has provided $8,000,000 which, with the Carnegie relief fund of $4,000,000, given by Andrew Carnegie, on March 12, 1901, makes up a fund of $12,000,000. This pension fund is administered by a board of 12 trustees, with a manager appointed by the board. Under the pension rules, three classes are provided:

First, pensions for compulsory retirement, to be granted employes who have been 20 years or longer in the service, and who have reached the age of 70 years for men, and 60 years for women.

Second, pensions for retirement by request, granted to employes who have been 20 years or longer in the service, and who have reached the age of 60 years for men and 50 years for women.

Third, for permanent incapacity, granted to employes who have become permanently and totally incapacitated through no fault of their own. The monthly pension to be paid will be on the following basis: For each year of service, 1 per cent of the average regular monthly pay received during the last 10 years of service, provided that no pension shall be more than $100 a month, or less than $12.

CONTRACTS FOR INGOT MOLDS.

Pittsburg, Nov. 30. (By wire.)

Several large contracts for ingot molds for 1911 delivery have been placed in this market. A valley interest reports that the tonnage of ingot molds booked in November shows an increase of 25 per cent over the preceding month, and correspondingly large gains are reported by other concerns. No action has been taken on the inquiry of a central Pennsylvania company for its full requirements for 1911, aggregating 20,000 tons.

PRODUCTION OF PLATES AND SHEETS IN 1909.

The American Iron and Steel Association received direct from the manufacturers the production of iron and steel plates and sheets in 1909 as follows: In 1909 the production, excluding nail plate, amounted to 4.234,346 tons, against 2,649,693 tons in 1908, an increase of 1,584,653 tons, or over 59.8 per cent. The maximum production of 4,248,832 tons was reached in 1907. The following table gives the production by states since 1907, in gross tons:

States——Gross tons.	1908.	1909.
New England, New York and New Jersey	58,567	119,642
Pennsylvania	1,531,066	2,384,185
Delaware, Maryland and Virginia	25,000	29,038
West Virginia	159,714	211,012
Kentucky and Alabama	45,473	70,639
Ohio	603,213	938,185
Indiana, Illinois, Wisconsin Missouri, Wyoming and California	226,660	481,645
Total	2,649,693	4,234,346

The total production of iron and steel plates in 1909 amounted to 2,379,098 tons, as compared with 1,271,021 tons in 1908, an increase of 1,108,077 tons, or over 87.1 per cent.

The total production of iron and steel sheets in 1909 amounted to 1,855,248 tons, as compared with 1,378,672 tons in 1908, an increase of 476,576 tons, or over 34.5 per cent.

LOCOMOTIVE ORDERS BOOKED BY AMERICAN.

The Grand Trunk railroad has placed an order for 12 compound consolidated locomotives with the American Locomotive Co., and the Delaware & Hudson Co. has also ordered 11 locomotives of the same builder. This contract is made up of five 10-wheel passenger locomotives, four Mallet articulated compound locomotives, one 10-wheel super-heated passenger locomotive and one superheated consolidation freight locomotive. The Winston-Dear Co. has ordered two six-wheel switching locomotives from the American Locomotive Co.

Furnace Contracts.—The J. P. Brown Construction Co., Cleveland, has been awarded contracts for all brick construction work in connection with the two new furnaces, boilers and engine houses being built by Rogers, Brown & Co., at Buffalo. The steel structural work on these furnaces is being completed by the Variety Iron & Steel Works Co. The Tonawanda Iron & Steel Co., Tonawanda, N. Y., has awarded a contract to the Brown company for relining "A" stack.

Two New Directors.—At the recent annual meeting of the Alabama Consolidated Coal & Iron Co., Douglas Gordon, of the Baltimore Trust Co., and Joshua Levering, also of Baltimore, were elected directors. Satisfactory financial reports of the company for the past year were read and approved.

STEAMER ORDERED

By Canadian Concern—Rapid Progress in Building.

Toronto, Can., Nov. 29.

The Niagara, St. Catharines & Toronto Navigation Co. has let a contract for the building of a new steel steamer to the Collingwood Shipbuilding Co., the estimated cost being about $150,000. The vessel will be 200 feet long by 38 feet beam, with single screw and triple expansion engines, and will have a conveying capacity of 1,000 passengers and 50 tons package freight. She will be fitted out with wireless telegraph and steam steering apparatus, and is to be ready by June 15.

The Taggart Iron Works, Ltd., of Winnipeg, has entered into an agreement with the adjoining city of St. Boniface to establish a branch there in consideration of having a fixed assessment on its property for 20 years. Building operations on the plant are to be begun within six months.

The steel for the new electric railroad from a point on the Temiskaming & Northern Ontario railway to Porcupine, about 30 miles in length, has been ordered from the Algoma Steel Works, Sault Ste. Marie. Sixty-pound rails will be used.

Rapid progress is being made with the construction of the new annex to the Windsor street station of the Canadian Pacific railway, Montreal, and over 1,000 tons of steel have already been ordered. A force of 500 men are engaged on the work, and structural steel is being put in place at the rate of 300 tons per week. The work will continue all winter, and the steel work is expected to be finished by April. The building will have a 16-story tower rising 280 feet from the foundations to the top of the flagstaff.

The sixth annual report of the National Trans-Continental Railway Commission, which has in charge the building of the eastern section of the Grand Trunk Pacific road between Winnipeg and Moncton, N. B., shows that the total expenditure up to the end of the fiscal year on Mar. 31, last, was $71,918,843, the expenditure for the year being $19,968,126. The total grading done amounted to 1,106 miles, and the total extent of track laid was 813 miles.

Erratum.—An error in the figures for Swedish ore imports on page 981, last issue of THE IRON TRADE REVIEW, made the shipments for nine months ending with September, 1910, 2,000,000 tons, instead of about 200,000 tons, compared with about 52,000 tons for the corresponding period of 1909.

OPPOSED EXTENDING

Of Great Lakes Insurance—Last Ore Cargo Loaded.

The Great Lakes Protective Association at its meeting, on Monday, put itself on record as opposed to extending insurance after midnight, Nov. 30. No applications for extension of insurance have been received by the underwriters and it is improbable that any extensions will be asked. The demand for vessels for December is light and unless better rates are offered, the vessels will lay up. There is some inquiry, however, for coal tonnage and the Lake Michigan rate has been marked up to 50 cents. There is also a small cargo on the market for Green Bay at 75 cents. These rates, however, would have to be sharply advanced for December loading. The last ore cargo was loaded Nov. 30.

The Toledo Ship Building Co. launched, on Saturday, car ferry Ann Arbor No. 5, which it is building for the Ann Arbor Railroad Co.

PLANS APPROVED.

At a special meeting of the stockholders of the Pittsburg Steel Co., at Pittsburg, Pa., on Nov. 23, plans announced recently by President Wallace H. Rowe for increasing the capital stock from $6,000,000 to $14,000,000 were approved. It has not been definitely decided when actual construction will be started on the proposed new blast furnaces at Monessen, Pa., but it is understood that preliminary work will be started early next spring.

A MOTOR CONTRACT.

The Republic Iron & Steel Co. has just made a contract with the Westinghouse Electric & Mfg. Co. for 79 crane and mill motors aggregating about 5,000 horsepower, to be used in the steel company's mill at Youngstown, O. The contract also includes magnetic controllers for the larger motors and manually operated controllers for the smaller motors.

WANT FOUNDRY EQUIPMENT DATA.

The Bunting Brass & Bronze Co., Alliance, O., would like to receive catalogs and prices, from manufacturers of foundry equipment, on flasks, melting furnaces, etc., for its new plant under erection at Toledo, O. Wood flasks with iron ends are required in sizes varying from 18 x 18 x 6 inches to 4 to 6 feet wide and 6 to 8 feet long, having cope and drag, 6 to 12 inches deep. Other equipment required include slip jackets, metal lockers, grinding wheels, flask weights, wheelbarrows, clamps for core boxes, standard core boxes, molder's benches, charcoal drying pans and grates for drying floor molds, crucible shanks, steel shelves for cores, shapers for tool room use, pit furnaces, motors and generators, milling machines, air compressors, ash crushers, blacksmith forge, wall crane with hand or electric hoist of 5-ton capacity, dust collector for polishing wheels, blowers for oil furnaces, oil melting brass furnaces, power sprue cutter, tumbling barrels, 2-ton chain blocks, sand blast outfit, magnetic separator, 1 and 2-ton geared ladles, molding machines, etc.

DRAWBACK EXTENDED TO ARMOR PLATE.

In the test case put up to the department by the Bethlehem Steel Co., the secretary of the treasury has decided that the regulations providing for allowance of drawback on pig iron, steel ingots, blooms, billets, structural material, etc., manufactured in this country from imported ore, ferromanganese and ferro-silicon by open-hearth process, should be extended so far as applicable to armor plate made with the use of ferro chrome, ferro chromium and the aluminum-silicon-manganese alloy known as "A. M. S." metal; and to guns made with the use of imported silicon spiegel, upon the sworn statement of the manufacturer as to the quantities of the imported ingredients used. The allowance per ton of armor plate will be 0.0825 ton ferro chrome or ferro chromium, and 0.014 ton A. M. S. metal; and for each ton of guns exported 0.2154 ton silico-spiegel.

Officers Elected.—At the annual meeting of the stockholders of the Connellsville Mfg. & Mining Supply Co., Connellsville, Pa., a few days ago, the following officers and directors were elected:

President, Rockwell Marietta; vice president, Clair Stillwagon; secretary and treasurer, W. H. Soisson; general manager, D. F. Lepley; chairman of the board, W. H. Hugus. Directors: Rockwell Marietta, Clair Stillwagon, W. H. Soisson, W. H. Hugus, D. F. Lepley, Charles Weihe, J. M. Gray and A. D. Soisson.

Spring Company Fails.—The Supplementary Spiral Spring Co., of St. Louis, has filed a petition in bankruptcy, showing liabilities in excess of assets by more than $13,000. The company's assets are scheduled at $7,641, and the liabilities are given as $20,962.56.

OPPOSED TO REDUCING WORKING HOURS.

The semi-annual meeting and banquet of the Washington District of the United Metal Trades Association of the Pacific Coast was held at the Artic club, Seattle, Nov. 16. Francis G. Frink, chairman, presided at the meeting.

The matter of reducing hours during slack times was discussed and it was the sense of the meeting that the nine-hour day be preserved intact, and the shop run five days a week or less, if necessary, in slack times. This stand was taken because any reduction of working hours, in view of the present pressure by labor unions for an eight-hour day on the Pacific coast, would weaken the employers' position and make it extremely difficult to return to the nine-hour schedule when business picked up.

Remove to Pittsburg.—The famous Olson vertical machine for testing structural materials, the largest of its kind in the world, is to be removed from Washington, D. C., to the Arsenal Park, Pittsburg, where the Pittsburg testing laboratory is located. This announcement is made following the recent visit of Secretary Richard A. Ballinger, of the department of the interior, to Pittsburg.

Penalty for Misrouting.—The Interstate Commerce Commission has ordered that the Houston, East & West Texas Railway Co., on or before Jan. 2, 1911, pay to the Block-Pollak Iron Co., $154.56, with interest thereon at the rate of 6 per cent per annum from March 21, 1908, as reparation for misrouting two carloads of scrap iron shipped from Peterville, Tex., to Carondelet, Mo.

Absorbed.—The Bess Machine Co., Hamilton, O., manufacturer of a laundry outfit owned by Albert Bess and L. Stemler, has been absorbed by the American Laundry Machine Co., of Norwood, O. The Bess company operates a small plant employing about 50 men.

Copper exports for the week ending Nov. 24 were 4,875 tons, an increase of 81 tons; for the month to date, 22,307 tons, an increase of 2,679 tons; since Jan. 1 to date, 259,980 tons, a decrease of 10,107 tons.

The Vim Motor Mfg. Co., Sandusky, O., has increased its capital stock from $25,000 to $60,000.

COMPULSORY COMPENSATION LAW FOR EMPLOYERS AND EMPLOYES

In a Number of States Agreed Upon at Chicago Conference---Important Announcement Made at Meeting of Employers' Association of Cleveland

The fourth annual dinner and business meeting of the Employers' Association of Cleveland, held in the Hollenden hotel, Tuesday evening, was one of the most interesting, well attended and enthusiastic in its history. Steps were taken to place the association on a permanent basis and widen its scope of usefulness, a committee being empowered to select permanent quarters and a paid secretary. The toastmaster was Richard A. Feiss.

Two especially interesting addresses were delivered, one by J. Harrington Boyd, of Toledo, chairman of the Ohio state commission now engaged in inquiring into the question of employers' liability and workmen's compensation to the end that a law may be prepared for passage by the state legislature possibly at the coming session; and the other by former Mayor C. W. Bookwalter, of Indianapolis, on the need of industrial education.

The utterances of Mr. Boyd were listened to with closest attention for the reason that, as chairman of the commission engaged in taking testimony of employers and employes in all the large manufacturing and commercial centers of the state with a view to framing a law that will govern entirely the question of compensation for accidents to workmen engaged in every manner of employment, his remarks carried great weight to every Ohio employer. He told of a recent meeting in Chicago which was attended by like commissions from a number of eastern and western states, thus showing the widespread interest being taken in the subject. He pointed out salient features of a general measure adopted at this conference as the standard or basis for legislation in the various states. This general measure was agreed to by both the representatives of the labor element as well as the employers. It provides first of all for compulsory enforcement of the law when enacted on both employers and employes, and consequently the abrogation of all such rules as the "assumption of risk," "fellow servant rule," "contributory negligence," etc., which have developed into law. Further, he pointed out that the maximum amount to be paid in case of death shall be $3,000, in installments; in case of partial disability the maximum shall be $10 a week and the minimum $5 a week, payment to begin two weeks after injury. In prefacing his remarks, Mr. Boyd gave a clear and comprehensive review of legislation at home and abroad on the workmen's compensation and employers' liability questions.

Mr. Bookwalter followed with an address, interesting and witty, along the general lines followed by him in his address before the National Founders' Association recently at Chicago, and published in THE IRON TRADE REVIEW of Nov. 24.

Encouraging reports of the year's work were made by the retiring president, W. D. Sayle, Treasurer O. M. Stafford, Secretary Philip Frankel and Chairman F. H. Clark, of the publicity committee. A net gain of 36 members in the year was noted. Suitable resolutions upon the retirement of Secretary Frankel were passed and he was given a handsomely engrossed copy, it being impossible for him to carry on the work as well as the increasingly burdensome duties of officiating with affiliated organizations. It was pointed out that much of the success of the employers' movement in Cleveland was due to Mr. Frankel's efforts.

A nominating committee reported the following officers for the year, the report being unanimously adopted: President, left vacant to be filled by the committee later; first vice president, W. B. McAllister; second vice president, Frank H. Clark; treasurer, C. O. Bassett; governing board, O. N. Steele, H. C. Bradley, N. S. Calhoun, W. S. Blau, W. B. Greene, E. H. Rohe, L. H. Kittredge, Richard A. Feiss, Charles F. Kurz, H. W. Stoer, Conrad Krause, John A. Penton, J. P. Smith, Joseph H. Glauber, George F. Thesmacher, W. W. Toot, Sol Salberg and L. D. Weaning.

INSTITUTE OF INDUSTRIAL RESEARCH.

Dr. Allerton S. Cushman, after nearly ten years in the government service, has withdrawn from this work to found the Institute of Industrial Research in the city of Washington. This institute plans to undertake the investigation of industrial problems in all lines including metallurgical problems, agricultural chemistry, paint technology and chemical industry. Land has been acquired in the heart of the city, upon which the laboratories will be built immediately, with a thorough equipment to meet the needs of various branches of research to be undertaken. Temporary offices have been established at 804 Hibbs building, Washington. Associated with Dr. Cushman in the institute are Henry A. Gardner, formerly director of the scientific section of the Paint Manufacturers' Association, in charge of the division of paint technology; and Dr. N. Monroe Hopkins, for many years associated with George Washington University, in charge of the division of electrical engineering, and electro-chemistry.

HANDY REFERENCE BOOK.

Hickman, Williams & Co. have just issued the third edition of their now widely known booklet on pig iron, coke and ferro-alloys. Beside containing a number of analyses of various brands and grades of pig iron, coke and ferro-alloys, the book contains reprints of articles by Robert Forsythe, H. E. Field and W. G. Scott. Other features include a large number of important statistics on pig iron, both production and consumption in the United States and abroad for a series of years, average monthly prices, iron ore statistics, coke statistics, etc. The booklet is permanently bound with flexible leather cover, and makes a valuable and handsome adjunct to the desk of every user of pig iron, coke and alloys.

No Sunday Stoppage.—The experiment of banking over Sunday the blast furnaces of the Carnegie Steel Co. at the Ohio works has not proved successful, and has been abandoned. The furnaces will run continuously hereafter.

INSTITUTE DIRECTORS

Meeting in New York—Bethlehem Will Roll Lehigh Rails.

New York, Nov. 30. (By wire.)

A meeting of directors of the American Iron and Steel Institute is being held in this city today, having been called by President E. H. Gary. Various matters pertaining to the steel trade are being discussed.

The Tennessee Coal, Iron & Railroad Co. reports rail sales, 1,000 to the Fairburn & Atlantic Railway & Electric Co., and 700 to the Shreveport Traction Co.

It is generally understood that the Bethlehem Steel Co. will roll practically the entire Lehigh Valley rail order for next year, which is estimated at from 10,000 to 20,000. The public service commission may let subway extension contracts today.

Personal.

J. H. Plummer, president of the Dominion Iron & Steel Corporation, Montreal, has been elected a director of the Bank of Nova Scotia.

N. S. Calhoun, of Maysville, Ky., will shortly locate in Cincinnati, having been elected secretary and treasurer of the recently established John Deitsch Mfg. Co.

Abbott A. Thayer, of the Cincinnati Milling Machine Co., Cincinnati, sailed for Germany, on Nov. 29, with the intention of establishing branches of the business in several portions of Europe.

J. B. Fisher, recently appointed sales agent at St. Louis for the Sloss-Sheffield Steel & Iron Co., of Birmingham, Ala., has opened offices in room 1113, Central National Bank building, St. Louis.

Fred A. Geier, president of the Cincinnati Milling Machine Co., Cincinnati, was elected vice president of the National Society for the Promotion of Industrial Education, at its meeting, recently held at Boston, Mass.

A. M. Conneen, who has been in charge of the structural steel department of the Bethlehem Steel Co. in Philadelphia and southeastern territory, and with headquarters at Philadelphia, has been transferred to New York office of the company, succeeding L. R. Lusk, resigned. Mr. Conneen's place in the Philadelphia office has been filled by Lee R. Stewart, who has been looking after the structural sales of the company in the Pittsburg territory. Mr. Lusk has become associated with the National Bridge Works, Long Island City. The changes were effective Dec. 1.

DAVID M. HUNT JR. KILLED BY ACCIDENT.

David M. Hunt Jr., manufacturing manager for the E-M-F Automobile Co., Detroit, was instantly killed Nov. 26, in an automobile accident. Mr. Hunt, together with Charles Adams, general superintendent of the company, and others, had gone for a hunting trip, when near Yale, Mich., the car skidded and overturned, and Mr. Hunt, who was standing on the running board, was caught underneath and sustained a broken neck.

Mr. Hunt was a graduate of Harvard, and was 35 years of age. After leaving college, he made the selling department in business his specialty, and about nine years ago went to Cleveland as sales manager for Manning, Maxwell & Moore in that city. After two years in this position, he went to Springfield, Mass., to become sales manager for the Baush Machine Tool Co. Shortly after, however, he severed his connection with that firm and accepted a similar position with the Warner & Swasey Co., of Cleveland. There Mr. Hunt remained until the early part of last spring, when he went to Detroit in the service of the E-M-F company.

[*Photo by Scharp.*]
DAVID M. HUNT JR.

Funeral services were held in Detroit and burial was made in Boston.

DEATH OF W. H. WOODWARD, OF BIRMINGHAM, ALA.

The death of W. H. Woodward, first president of the Woodward Iron Co., occurred Nov. 25, at his summer home at Weld, Me. For some time he had been ill with acute indigestion which affected his heart. He was about 70 years old.

Mr. Woodward first visited the Birmingham, Ala., district with which his name is linked closely, in 1873, with his father, William H. Woodward, and his brother, J. H. Woodward. Two years previously his father had purchased the lands now owned by the Woodward Iron Co., although he was at the time connected with La Belle Iron Works at Wheeling. A blast furnace was erected and first lighted in 1883. William H. Woodward Jr. was chosen president of the original organization, J. H. Woodward being secretary and treasurer. After some time he retired from active connection with the company, of which J. H. Woodward became president and still continues to occupy that office. He then devoted himself to various commercial investments in Birmingham.

Luther Halsey Smith died recently at his home in New York, of apoplexy. He formerly lived in Pittsburg, where he was engaged in the tin plate business.

The death of John E. Wing, of the firm of Wing & Son, machinists, Hamilton, Ont., occurred on Nov. 22, after a two weeks' illness, aged 62. Mr. Wing had been a resident of Hamilton for 40 years.

Frederick Schelp, founder of the Schelp Wagon & Carriage Co., St. Louis, which later were merged with the Moon Buggy Co. and the Moon Motor Car Co., died Nov. 25, aged 83. He came to St. Louis from Germany in 1847.

Colonel Robert Munroe, aged 76, who organized the West Point Boiler Works about 53 years ago, died at his home, Northside, Pittsburg, Nov. 24. Mr. Munroe was well known in the iron and steel trade, and at the time of his death was president of the R. Munroe & Sons Mfg. Corporation, Pittsburg.

Challis Bowker, manager of the Curtis Bay, Md., plant of the Baltimore Car & Foundry Co., died Nov. 15, aged 35. He had occupied the position as manager about one year, going to Curtis Bay works from Pittsburg, where he had formerly been connected with the Pressed Steel Car Co.

Henry T. Jones, vice president of the More-Jones Brass & Metal Co., St. Louis, died Nov. 28 at his home in that city, after an illness of several weeks, aged 67. He had been a member of the More-Jones company since it was organized more than 30 years ago. He was born in Leeds, Eng., and came to St. Louis about 55 years ago.

The share market in New York during the week was almost lifeless, the general public showing no interest. Easier money conditions created somewhat a firmer undertone, but the dullness was pronounced. Bonds were inactive.

Monday the market was very dull and weak at the close, active issues closing 1 to 2 points lower; the cotton market was strong and higher, but corn declined to a new low price. On Tuesday stocks averaged lower, and the volume of trading was very small; corn declined to the lowest prices of several years. Sales on Wednesday were very small, and the price changes insignificant, but averaging slightly higher. Thursday was Thanksgiving holiday, the exchanges being closed; the Bank of England rate of discount remained unchanged at 5 per cent. Price changes on Friday were scarcely worth noting, and the volume of sales made the smallest total of any day in more than two months. On Saturday the volume of sales reached only 65,000 shares, and there were few price changes.

Call money was uniformly easy during the week, ranging from 2¾ to 2 per cent. Time money became increasingly easier, rates falling decidedly in the closing days. The actual surplus of New York banks on Saturday decreased $2,025,450, a prominent feature of the report being the shifting of loans from the trust companies to the clearing house banks. The actual condition of the clearing house banks was reported as follows: Loans increased $17,333,400; deposits increased, $20,163,500; reserve increased, $3,018,900; surplus decreased, $2,025,450, and the percentage of reserve 26.51 compared with 26.71 the previous week. Non-member banks and trust companies reported: Loans decreased, $12,944,700; net deposits decreased, $12,252,500; reserve decrease, $936,400, and the percentage of reserve, 17.4, compared with 17.5 the preceding week. Commercial failures during the week were 228, compared with 275 the preceding week, and 228 the corresponding week last year. Bank clearings in the United States showed a considerable decline, the loss from the previous week being 13 per cent, and from last year, 4½ per cent. Shares were sold to the number of 1,144,600, compared with 2,453,600 the previous week, and 4,926,700 the corresponding week last year. Bonds, exclusive of government bonds, were sold to the amount of $7,491,000, compared with $10,284,000 the preceding week, and $16,909,000 the corresponding week last year.

	Closing Quo. Nov. 19	Changes in week	Annual Meeting Date 1910		Stock Outstanding	Basis	Dividend Last Dividend	Date Last Div. Pay.
Allis-Chalmers	9⅞	.....			$19,820,000		.....	.....
Allis-Chalmers, pr	33	—1			16,150,000	7 cum	1¾ Q.	Feb., 1904
American Can	10⅛	+ ⅛	Feb.	2	41,233,300		1¾ Q.	.....
American Can, pr	80½	+ ⅜			41,233,300	7 cum.	1¼ Q.	July, 1910
Am. Car & Fdy	54½	—1	June	24	30,000,000		½ Q.	Oct., 1910
Am. Car & Fdy., pr	114¼	.....			30,000,000	7 n. c.	1¾ Q.	Oct., 1910
American Loc	40½	+ ¼	Oct.	18	25,000,000	5	1¼ Q.	Aug., 1908
American Loc, pr	106¾	.....			25,000,000	7 cum.	1¾ Q.	Oct., 1910
American Ship	78⅛	— ⅜	Oct.	12	7,600,000	4	1 Q.	Sept., 1910
American Ship, pr	109	.....			7,900,000	7 cum.	1¾ Q.	Oct., 1910
Am. Steel Foundries(new)	47¾	+ ¼	Dec.	1	17,184,000		1¼ Q.	Nov., 1910
Barney & Smith	20	.....	June	7	2,000,000	4	1 Q.	Dec., 1910
Barney & Smith, pr	85	—5			2,500,000	8 cum.	2 Q.	June, 1908
Bethlehem Steel	32⅜	— ⅜	April	5	14,862,000		.....	.....
Bethlehem Steel, pr	62¾	+1¾			14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	44	— ½	Mar.	15	45,000,000	5	1½ Q.	Nov., 1910
Cambria Iron	45	.....			8,468,000*	4	2 S. A.	Oct., 1910
Chicago Pneumatic Tool	42	+1½	Feb.	21	6,485,800	4	1 Q.	Oct., 1910
Colorado Fuel	34⅛	—1⅞	Oct.	17	34,235,500		1¾ Q.	Apr., 1902
Crucible Steel	13⅛	.....	Oct.	19	24,578,400		3½	.....
Crucible Steel, pr	79¼	— ¼			24,436,500	7 cum.	1¾ Q.	Sept., 1910
Empire Steel	12	.....	Feb.	23	1,254,770		.....	.....
Empire Steel, pr	55	.....			2,500,000	6 cum.	3 S. A.	July, 1910
Fay & Egan	70	.....	Feb.	15	1,000,000	6	3 S. A.	Feb., 1909
Fay & Egan, pr	115	.....			1,000,000	7 cum.	1¾ Q.	Sept., 1910
General Electric	160	+6	May	10	65,179,600	8	2 Q.	Jan., 1911
Harbison-Walker	32¼	.....	Jan.	17	18,000,000		½ Q.	Dec., 1910
Harbison-Walker, pr	95	.....			9,600,000	6 cum.	1½	Oct., 1910
International Pump	44¾	.....	May	10	17,762,500		1 Q.	Nov., 1910
International Pump, pr	85½	—⅛			11,350,000	6 cum.	1½ Q.	Aug., 1910
Lackawanna Steel	40	+1	Mar.	9	34,978,000		.....	.....
Lake Sup. Corp	27¼	— ¾	Oct.	5	40,000,000		.....	.....
New York Air Brake	74½	— ½	June	16	10,000,000	8	1¾ Q.	Oct., 1910
Niles-Bement-Pond	98	.....	Feb.	2	8,500,000	6	1½ Q.	Dec., 1910
Niles-Bement-Pond, pr	104	.....			2,000,000	6 cum.	1½ Q.	Nov., 1910
Otis Elevator Co	50	—1	Mar.	21	6,375,000	3	1½ S. A.	Oct., 1910
Otis Elevator Co., pr	95	—2			6,310,000	6 n. c.	1½ Q.	Oct., 1910
Pa. Steel	60	.....	May	9	10,750,000		.....	.....
Pa. Steel, pr	104½	.....			16,500,000	7 n. c.	3½ S. A.	Nov., 1910
Pittsburg Coal Co	20¼	.....	Mar.	8	28,104,600		.....	.....
Pittsburg Coal Co., pr	70½	—1½			27,071,800	7 cum.	1¾ Q.	Oct., 1910
Pressed Steel Car	34	— ⅞	Feb.	16	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr	96⅞	+ ⅛			12,500,000	7 n. c.	1¾ Q.	Nov., 1910
Pullman	165	.....	Nov.	9	120,000,000	8	2 Q.	Nov., 1910
Railway Stl. Spring	34	—2	Mar.	3	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr	97⅞	+4⅛			13,500,000	7 cum.	1¾ Q.	Dec., 1910
Rep. Iron & Steel	34⅛	—1	Oct.	19	27,191,000		.....	.....
Rep. Iron & Steel, pr	97	—1			25,000,000	7 cum.	1¾ Q.	Jan., 1911
Sloss-Sheffield	52	+ ⅜	Mar.	9	10,000,000	5	1¼ Q.	Sept., 1910
Sloss-Sheffield, pr	114½	.....			6,700,000	7 n. c.	1¾ Q.	Oct., 1910
U. S. Pipe & Fdy. Co	17¾	+ ½	June	22	12,106,300	2	1 Q.	Dec., 1910
U. S. Pipe & Fdy.Co.,pr	58	.....			12,106,300	7 n. c.	1¾ Q.	Dec., 1910
U. S. Steel	79⅞	—1¾	April	18	508,302,500	5	1¼ Q.	Dec., 1910
U. S. Steel, pr	118¼	+ ½			360,281,100	7 cum.	1¾ Q.	Nov., 1910
U. S. Steel 5s	103⅝	— ¼			463,798,000	5	.....	.....
Va. Iron, Coal & Coke	50	.....	Sept.	20	9,073,680		5. †	Oct., 1907
Westinghouse Elec	72½	+1	July	27	3,998,700*		10½ Q.**	Oct., 1910
Westinghouse Air Brake	140	.....	Oct.	4	13,750,000*		5 Q. ‡	Oct., 1910

Par value of shares, $100, except those starred (*), $50.
**Includes 8¾ per cent on back dividends.
†Stock.
‡Includes 1½ extra and 1 special.

Copper Stocks.

New York.—Amalgamated Copper closed 69¾, a net loss of 1.

Boston.—Butte Coalition closed 20, a net loss of ½; Calumet & Arizona closed 54¾, a net gain of ¾; Calumet & Hecla closed 600, unchanged; North Butte Mining closed 35, a net loss of ½; Quincy Mining closed 77, unchanged.

Financial Notes.

The American Brake Shoe & Foundry Co., at its recent annual meeting, declared the regular dividend of 7 per cent on both preferred and common stocks for the year, the first quarterly payment of 1¾ per cent on each being payable Dec. 31.

The Thomas Iron Co. has blown out one of its Hellertown, Pa., stacks which have been operating.

THE IRON TRADE REVIEW

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January, 1910	5,681
February	5,703
March	5,754
April	5,793
May	5,827
June	5,842
July	5,864
August	5,875
September	5,895
October	5,955
November	5,993

December 1, 1910

THE BASIS OF RAIL DEMAND

So much misapprehension continues to exist as to rail tonnage requirements that it seems well to recur to a subject which has been gone over pretty thoroughly in these columns. Under date of Dec. 9, 1909, and the caption "The Upkeep of Railroad Track" it was pointed out that the Southern Pacific, in its fiscal year ended June 30, 1909, had renewed the rails on 541 miles of track, 4.14 per cent of its total trackage, including sidings, so that it laid one ton of steel rails for each 90,000 ton-miles of freight traffic over its road. We had already developed the fact that the wear of rails could best be studied by reference to ton-mileage of freight, and cited the fact that the Pennsylvania system's statistics for the five calendar years 1904-8 inclusive had shown an average of one ton of rails used for replacement purposes to 225,000 ton-miles of freight traffic. On Feb. 3, 1910, under the heading "The Basis of Rail Demand" we developed the fact that steel rail consumption (production plus imports less exports) was 13,000,000 tons in 1881-9, with an increase of 86,441 miles in track; in 1890-8 consumption was also 13,000,000 tons, but new track 43,151 miles, or only half as much; in 1899-1907 consumption was 26,000,000 tons and new track 78,794 miles. In the first nine-year period new track took most of the consumption; in the next two nine-year periods new track was only half as great, in proportion to consumption, the consumption being largely for the purpose of replacing old and light rails with heavy sections, because train loads and speeds had become too great for the original light sections. On March 10, 1910, discussing the 1909 rail production statistics which had just appeared, we observed that the total production of rails in the United States to date had been 10,700,000 tons of iron rails and 59,300,000 tons of steel rails. Poor's latest statistics show 8,862 miles of track still laid in iron rails, which would precisely account for the odd 700,000 tons if we take the average section to be 50 pounds per yard, leaving 10,000,000 tons of iron rails to have been worn out in service. Imports and exports of steel rails, while of course not contemporaneous, had almost precisely balanced, each slightly exceeding 3,000,000 tons. The total tonnage of rails in service was estimated at about 50,000,000 tons, leaving it that we had worn out 10,000,000 tons of iron rails and, as a rough approximation, 10,000,000 tons of steel rails.

In the light of these facts it is obviously absurd to infer, as is done in some of the comments on the rail orders now being placed for next year, that the wearing out of rails in steam roads has been the chief source of rail demand in the past, while to infer that this will be the chief source of demand in future is to predict that total rail tonnage will be relatively light.

The Pennsylvania factor of one ton of rails for replacement for 225,000 ton-miles of freight movement can incorrectly represent what may be expected in the country at large only by taking too little freight traffic per ton of rails. During the five years 1904-8 inclusive the Pennsylvania system did not allow its track to go down; the period probably left the track better than it found it, and some of the tonnage used was undoubtedly for the purpose of replacing light rails with heavy rails, a work which does not need to be done again.

The Erie rail order was the initial one for 1911 delivery, and called for 33,000 tons. Dividing the ton-mileage in the Erie's best year by 33,000 gives a factor of 190,000 ton-miles of freight per ton of rails, a lower factor than the Pennsylvania, which indicates either an intention to lay some new track or the necessity of replacing with heavy rails some light rails which have worn out more rapidly than would the sections now commonly used.

The total ton-mileage of steam roads of the country was 233,138 millions in 1907, 215,699 millions in 1908 and 227,199 millions in 1909. While the factor we have quoted, 225,000, may be considerably in error, it is interesting to note that its application would indicate the wearing out of a million tons of rails a year on the steam roads. We summarize briefly what may be said as to other demand.

In the past 10 years the increase in steam railroad track, including sidings and all has averaged 9,000 miles a year, little more in the second half of the decade than in the first half, but the present pace is slower. Using 80-pound rails, 5,000 miles of track next year would require about 675,000 tons of rails, while 7,500 miles would require about 1,000,000 tons.

No data are available for even an

approximate estimate of the requirements of electric lines. While there is a large mileage of track, considerably more than one-tenth that of the steam roads, the wear is relatively light, for the bulk of the mileage is made up of trackage upon which the duty is not severe. A very few hundred thousand tons should easily cover replacements and new building.

The production of light rails, for various industrial uses, is running at the rate of about 250,000 tons a year.

Exports in the first nine months of this year were at the rate of 350,000 tons a year. A moderate proportion of this tonnage is light rails, already considered.

According to the temperament of the individual various estimates of prospective rail tonnage can be made up. From the above data these would range from 2,000,000 tons to perhaps 3,500,000 tons.

Further Tariff Agitation Deprecated

A letter to President Taft, written under date of Nov. 17, by James M. Swank, vice president and general manager of the American Iron and Steel Association, on behalf of the association, calls attention to the business unrest and commercial turmoil that has followed the panic of 1907, much of which, he urges, could have been avoided. In part in his letter, Mr. Swank says:

Contributing to the unrest and discontent of the past three years was the revision of the tariff by the present congress. Granting, but not conceding, that there has existed a popular demand for this revision which could not be ignored, surely there exists no good reason why another tariff revision should be attempted, as is now proposed, before the tariff act of 1909 is a year and a half old. Admitting that the new tariff is not perfect, as indeed no tariff is, it can be said with great positiveness that in no one of its many schedules is injustice done to any consumers of so serious a nature as to require correction at the cost of a general re-opening and agitation of the whole tariff question, for it may be accepted as a perfectly safe proposition that one schedule can not be revised without involving a discussion of the merits of all the schedules and also of the revenue system upon which they have all been based. Does the country wish to be again involved in the discussion of the whole tariff question? Most assuredly it does not.

We know of no good reason why this country should now be disturbed by a fresh tariff agitation. The new tariff, with the aid of the corporation tax, of which it forms a part, produces sufficient revenue to meet the wants of the government if these wants be kept within reasonable bounds. There is, therefore, no question of revenue involved in the proposition to have another tariff revision. There might be some reason for the revival of tariff agitation if it were reasonably certain that a new tariff would result in a reduction in the cost of the necessaries of life, but this result can not be inferred from a study of the causes of high prices which are now known. Furthermore, the prices of some necessaries are now receding. With regard especially to the prices of manufactured products it can be said with entire truthfulness that few of these which enter into general consumption are now higher in price than they have been for many years, while it is equally true that the general advance in the wages of workingmen and the increased prosperity of the farmers have more than kept pace with the increased cost of these manufactured goods; indeed one cause of their increased cost is the increase that has taken place in wages. Generally speaking, and comprehensive of the whole industrial situation as it has existed for several years, it must be evident to all observers that no part of the community is today suffering from any cause which can be attributed to the influence on prices of the present tariff.

But some of our people are injuriously affected today by the insufficient protection afforded by the tariff of 1909 in certain schedules, resulting in either a diminished demand for labor, which means a diminution of wages and a consequent decrease in their purchasing power, or in a checking of manufacturing enterprise, which means a locking up of capital. If a large steel plant is operated only four days out of six, or even five days out of six, the workmen in that plant necessarily lose a proportionate part of their wages. Many of our manufacturing establishments are now running on short time or with reduced capacity.

With these facts and considerations before us we respectfully submit that no good reason exists for a further revision of the tariff or any part of it at the present time or at any time in the immediate future, and that it would be unwise to recommend that this revision be made. If recommended and undertaken the country's industrial conditions, which have been subjected during the past three years to a great strain, would be still further depressed, and the capitalists who provide employment for workingmen would have their anxiety still further increased. We respectfully suggest that nothing be done to increase the general discontent, but that everything possible be done to allay apprehension, especially in business circles. Stability is greatly needed and not continual agitation. The country wants industrial, financial, and political peace.

The Bethlehem Steel Co. for the ten months ending Oct. 31 shows total income of $3,351,169; interest charges, $1,394,216; net income, $1,956,952; previous surplus, $3,268,075; total surplus, $5,225,025.

Briton's Impressions of American Tour

Sir John Randles, M. P., head of the Cumberland iron and steel combine, interviewed by a representative of the Sheffield (Eng.) *Telegraph* on his return to Torrington from the United States, where he has played a leading part in the conference of American and European iron and steel manufacturers, stated that what struck him more than anything else during his visit to the great iron and steel works, was their immense capacity for enormous production. The superiority of the American plant over English plant was not so marked as the greater facilities they had created for handling large bodies of material such as ore and fuel from mine to furnace.

In America they handled thousands of tons where they, in this country, handled only hundreds. In America they did it without manual labor; here they did it by much lifting, pushing, and shoveling.

The very costliness of their labor had compelled the American manufacturers to economize by the wholesale adoption of labor-saving devices. Though wages are high in America, yet their prodigious production made the cost per ton for the labor lower than in England.

Sir John was impressed by the esprit de corps which existed among American workmen. They were great believers in team work. Each team tried to beat other teams in the expedition with which they got through their work, and the excellence of the manner in which it was done. They were more keenly interested in the results of these team competitions than English people were in the result of important football matches.

Sir John was in no way dismayed as to the ability of English manufacturers to hold their markets. Americans, if they laid themselves out for it might possibly cut them out; but it would be at such an enormous expenditure of capital that they probably would not consider the game worth the candle.

Carnegie's Gifts.—Trustees of the Carnegie Institute announce that, following his gift of $1,500,000 for immediate use in the equipment of the Carnegie Technical Schools, Pittsburg, Andrew Carnegie has presented the same institution with an additional sum of $2,000,000, in 5 per cent first mortgage gold bearing interest bonds of the United States Steel Corporation, which have a market value of $2,300,000. This makes a total donation at this time of $3,800,000.

SIGNIFICANCE OF LEGISLATIVE RECORDS

Discussion of Congressional Action and Bearing of Recent Election Results on Possible Labor Laws

By Marshall Cushing.*

Four features of the legislative or political record of the past year seem to deserve consideration in this, my second accounting to an employer that happens to be an employers' association; and they have a significance as related to the daily affairs of every member of the association that, in my humble view, he cannot afford to overlook. One was the beginning of eight-hour legislation. Another was the effort made by the president to secure anti-injunction legislation. The third was the defeat of the so-called Hughes amendment to nullify, in the case of organizations of laboring men, the provisions of the anti-trust act, so that boycotting would be permitted. The fourth was the overwhelming change in the political complexion of the house of representatives in Washington, which the voters of the country decided that they would bring about in the recent election. What do these things mean for the manufacturer, the property owner, the citizen?

Gardner and Borah Eight-Hour Bills.

The notorious Gardner eight-hour bill was left, at the close of last session, in the hands of a sub-committee of the House labor committee, deputized to examine the legal aspects of that proposition. The sub-committee received briefs pro and con. Among the strongest filed against the constitutionality of the bill was that by counsel for the National Founders' Association. This measure is perhaps not so likely as on some former occasions to receive serious attention at the approaching session. Its opponents will be able to plead the short duration of the closing weeks of the present congress. Its avowed supporters, being labor Democrats, may be expected to devote much of their time to securing everything possible under the prospective re-organization of the House.

But the extreme of watchfulness in reference to this measure must of course be employed, especially in view of the new interest in the subject which certain senators have undoubtedly taken of late. The Borah eight-hour bill, written by the junior senator from Idaho exactly in the terms of the Gardner bill, will need close attention. Mr. Borah undoubtedly expected, after a hearing or two at the last session, to report his bill favorably to the senate. Strong opposition to such a course dissuaded him from this purpose, though he was accustomed to say that the matter could be heard quickly at the next session (meaning the one now approaching) and could be reported favorably to the senate, or not, as the committee decided.

This eight-hour scheme, which the agitators of the American Federation of Labor put forward more than 10 years ago, has not received the continuous (or deserved) attention by organizations of employers that it has been possible to give to anti-injunction nostrums. Yet it is almost if not quite as dangerous, because of the insidious nature of the whole attack upon our industries which is involved in it; and it is so palpably a government interference with the rights of property and of freedom in the conduct of lawful business that it would be a real step towards the socializing of our industry. If the thousands of employers of the country, who would be directly concerned because of the fact that they have government contracts, were to consider that the success of this legislation would mean that they must either give up all government work, and all prospect of having any, or else try to do it in connection with their commercial work, the former under restricted and perhaps impossible conditions as to hours and the latter more restrictedly owing to the presence of the government work, they would realize how direct and sure would be the confiscation of property in buildings, machinery, etc., how gratuitous and violent the interference with the liberty successfully to conduct one's business lawfully, and how great the wrong to the independent draftsman, who desires to work more than eight hours a day.

A hearing or hearings before the senate committee on education and labor—Mr. Borah's—and possibly before the House labor committee on this Gardner-Borah eight-hour bill may be involved at the approaching session. If so, representatives of the National Founders' Association may be depended upon to be on hand.

Actual Beginnings of Eight-Hour Legislation.

By parliamentary means liable to be resorted to successfully at any time so long as a majority of the members of the House present and voting fail to stand up in face of political danger without caring whether anybody knows it or not, the House passed two propositions last spring that made a beginning at the legislation of the eight-hour work day into the enterprises of government contractors.

In March a special bill authorizing the, secretary of the treasury to expend $250,000 each for two revenue cutters was passed with an amendment providing that the work should be done on an eight-hour day, no division being involved, because no member opposed the amendment. By this action (which, in the present state of public opinion, it was impossible to prevent), the work day was legislated into the ship yards of any government contractor who might happen to get those contracts. In April an item in the naval appropriation bill, providing for the construction of two first-class battleships, was amended so that these two vessels, involving a cost of perhaps $12,000,000, must also be built on an eight-hour day, that is, by the provisions of the eight-hour law of 1892. This was by a vote of 131 to 15. The attorney-general later ruled, in response to an inquiry by the secretary of the navy, that the eight-hour law of 1892 would apply to the construction of these battleships in the navy yards alone. His decision, indeed, has proved so convincing and important that I append it to this report.

Anti-Injunction Promises Always Threaten.

The Republican National Convention at Chicago, to its honor be it said, omitted from its so-called court procedure or anti-injunction plank any reference to industrial disputes; it was not proposed to legislate in one way for one class and in another for another. Yet the anti-injunction

*Read before recent Chicago convention of National Founders' Association.

promise contained in this court procedure plank itself still remains. It seemed to avail but little to argue with the responsible leaders of the House and the Senate that so far as the court procedure promise would merely effectuate the present practice of the courts in reference to injunctions, it was wholly unnecessary, and that, so far as it promised nothing for labor (as it did not promise anything for labor), it would not result in securing or in losing votes, and thus had not even the poor argument of expedience back of it. The president was for it; and Mr. Taft, seeming to many to speak with additional authority because of the fact that he had been a judge familiar with injunction cases, continually urged the Moon bill (or some other bill equally bad) during the whole of the last session, and it was not till adjournment on the last day that this real anti-injunction proposition ceased to be a direct menace to the integrity of the courts and the safety of property and property rights.

In my report of last April to the annual meeting of the National Metal Trades Association I referred to the grave parliamentary dangers surrounding a bill like this Moon bill, however innocent it might seem, and however bad it was in reality if once it should be reported to the House. It could not be predicted what would happen to any measure which got away from a committee of the House (which is supposed to discuss it deliberately, and to report it or not to report it, as seemed to be the better way), and came upon the floor under the disintegrated and irresponsible state of affairs involved in the amendments to the House rules. The Moon bill, therefore, was not only wholly objectionable in itself, but it was fraught with danger because of the fact that almost anything of a radical and destructive nature might be done to it if once a large and unmanageable body of men, with the necessities of a political campaign before them, were actually to get hold of it.

There could hardly be a clearer illustration of the power of a persistent, though misguided, executive than this. Senators and representatives knowing the difference between right and wrong (and caring everything for such old-fashioned distinctions) wanted nothing of the kind. Certain others, considering the lowest motives of expediency, could see nothing of political advantage in it, and wanted nothing of the kind. Yet the president persisted, and may yet persist: and to date he is not known to have changed his views.

Methods of Opposition, Unsuccessful and Successful.

The opposition on behalf of the employers of the country to any legislation that could possibly hamper the courts manifested itself early in the session in two ways. One group, by openly attacking the president and certain members of Congress (who held, honestly enough, perhaps, to the view that "something ought to be done with the anti-injunction issue"), irritated and estranged important influences and made the danger of legislation of this nature greater than before. The forces represented by the National Founders' Association and the National Joint Committee proceeded in a different way. They argued man to man, by correspondence or personally, with the various leaders, members of the senate or the house, and with the president himself, seeking to prove the folly of undertaking to pass any such "moderate" anti-injunction bill. These efforts were not successful with the president. They were successful in inducing the leaders of the senate and the house to consider that, whatever might be the merits of the question, nothing could be gained by taking action at that time.

There thus appeared in that instance (as I happen to know and may perhaps be pardoned for mentioning), a new group of forces intended successfully to antagonize class labor legislation of any kind. It was represented by your own officers. They took no brass bands with them to Washington; but they did make it clear that the forces of law and order in this country were adequately organized to defeat such measures, or legislation of any nature, whether class legislation or not, that would weaken the respect for the courts on the part of the American public. They proceeded on the supposition that they were right and knew it, and could tell the statesmen, or the near statesmen, just why. And because of the fact that they were right, and kept it up throughout the whole of the session, never for a moment remitting any of the pressure, they undoubtedly contributed in a most important way to the defeat of any anti-injunction legislation whatever for the time being. True, it needs to be borne in mind that the president and others representing him have said, as recently as in the last campaign, that this "court procedure" promise was one of the very few remaining ones which the Republican party had to keep; meaning thereby that the same watchfulness lest anything adverse should be done in the next session of congress must be continued.

No Discrimination in Favor of Criminals.

The most sensational of the four incidents of the year occurred in June, when the so-called Hughes amendment to the sundry civil appropriation bill, providing exception for organizations of laboring men from prosecution under the anti-trust act, was defeated; and in order to illustrate how intricate a fight of that sort may become, how determined and courageous the friends of an impartial administration of the laws must be, and how important it is that the friends of law and order throughout the country should back them up every day and every hour, sometimes for weeks, if necessary, let me venture a word or two of detail as to that fight over the Hughes amendment.

On June 2 Hughes of New Jersey, a labor Democrat, when an item of the sundry civil bill appropriating $100,000 for the enforcement of the Sherman anti-trust act was under discussion in the house, offered an amendment providing:

"That no part of this money shall be spent in the prosecution of any organization or individual for entering into any combination or agreement having in view the increasing of wages, shortening of hours, or bettering the condition of labor, or for any act done in furtherance thereof not in itself unlawful."

Tawney of Minnesota, chairman of the committee on appropriations, having the bill in charge, made the point of order that this amendment was out of order, being "legislation under the guise of limitation." The chair ruled that the amendment, being "a mere limitation upon the expenditure of the appropriation," was in order. The question thus came on agreeing to the amendment. The chair announced that the noes appeared to have it. Hughes called for a division, and when the committee of the whole divided there were 24 ayes and 24 noes. Hughes called for tellers, and the committee again divided, and the tellers reported ayes, 32, and noes, 26. Tawney made the point of no quorum, and the chair, after a count, announced that there was not a quorum present. The roll was called, and when a quorum had been secured, the question again was on

agreeing to the amendment. On a division there were ayes, 75, and noes, 61. Tawney demanded tellers, and the tellers reported ayes, 82, and noes, 52, and the Hughes amendment was agreed to.

The sundry civil appropriation bill was under discussion in the senate a week later. The bill had been reported with the Hughes amendment omitted, and the appropriations committee (Hale, of Maine, chairman) was sustained by the senate by a yea and nay vote of 34 to 16, 42 not voting. The bill then went to conference, and of course one of the different questions for adjustment between the two houses was this Hughes amendment. On June 21, on a motion that the house conferees be instructed to refuse to agree to the senate amendment (omitting the Hughes amendment), the yeas were 154, the nays were 105, 12 answered "present", and 119 were recorded as "not voting." This meant that the house insisted upon standing to the Hughes amendment. On June 23 the item in disagreement, the same amendment, was again reached. Tawney moved that the house "recede and concur," which was in reality a motion to omit the amendment. This was carried by 138 yeas to 130 nays, 16 answering "present" and 105 being recorded as "not voting"—a rather narrow margin, surely, for the opponents of discrimination in the execution of our criminal laws.

A most important influence in determining this result was the intercession of the president, who had openly called upon the friends of law and order to beat the Hughes amendment. The leaders among the House Republicans also deserve immense credit for rallying their followers and making this determined (and apparently dangerous stand politically) against discrimination—the more so since this proposition had become, as the session wore along and there seemed to be little doing with eight-hour or anti-injunction legislation, the chief thing desired by the lobbyists of the American Federation of Labor. Backing up these administration and legislative influences were the forces back of the National Founders' Association and the National Joint Committee. Hundreds of influential manufacturers, being advised by their representatives on the spot as to what needed to be done in the way of instant educational work by letter or telegraph, did their part instantly and unquestioningly, and thus the tide was turned.

No Political Partizanship in Labor Questions.

Other organizations besides the National Founders' Association and the National Metal Trades Association were represented at the Chicago convention of the Republicans. Not so the Denver convention of the Democrats. There the two organizations back of the joint committee were alone represented. It was believed by the members of the committee, not only that the labor question, so called, was not properly to be considered a partisan question at all, but that an unfortunate situation might develop in time if it were found that either of the two parties, by reason of the fact that it was out of power, received no supporting or educational attention whatever. Just as it was thus perceived that the labor question is not a partisan one at all, and cannot in the very nature of the case be so considered, it now happens that the employers' movement, having to be confided more or less to the mercies of a party which has long been out of power in the House of Representatives (but which must evidently approach the labor question, as all others, in the near future, and which can be expected to do so in a spirit of patriotism and of desire to do the right thing practically), is fortunate in some degree, all things considered.

The result of the recent congressional election, the fourth incident of the past year of immense significance to employers, proved, first, that the employers' cause must be confided now to one party and then to another in the fortune of politics, and that organized labor, no matter how preposterous its pretensions, may secure discriminatory legislation until the truth in reference to industrial questions, and their relationship to the problems of politics, of economics, and even of sociology, has been writ so broad and high that nobody can fail to comprehend it.

Necessarily, while Republican members of the house, holding over to the next congress, will find places on those committees which have had the most to do with the treatment of labor questions, the members of the Democratic party in a house then responsible for legislation and in charge of the organization of the house will be found controlling those committees, as all others. On both sides of all the committees, too, will be found many members entirely new to these questions. Because of this fact, and since undoubtedly the lobbyists of "labor" will renew their fights for class legislation with greater vehemence and hope than ever before, it must be expected that hearings on any and all of the bills (the threat of which has so concerned manufacturers in the past) must be had. This will mean the presence of witnesses, and the usual amount of letter-writing and telegraphing, or perhaps more of it, than ever before. Distant states or congressional districts, hitherto represented by men having no direct responsibility for questions of labor legislation and no particular interest in them, will assume a new importance to the employers' cause. Not only must the members of the senate and the house representing these states and districts be fully advised as to the significance of all the various labor measures, but the states and districts themselves will need to be organized for defense against political coercion, even in many instances where (fortunately, in one aspect of the case) they have never been obliged to organize for defense against industrial coercion. The senators and representatives coming from these states and districts will do their duty if they are sufficiently informed; so also the states and districts themselves, when once the need of organization is pointed out to them convincingly.

Need For the Truth to be Known Universally.

Anyone who has advocated the employment of educational methods in the treatment of the labor question now finds himself justified as never before in going to the fullest extreme in pressing such an urgent need upon the attention of manufacturers and employers generally. The leaders of the Republican party, holding power and thus being responsible, have heard much, and have been obliged to think a good deal, about the exact bearings of these propositions to favor organized labor by means of legislation. In the case of many individuals (and in the case, too, of the party organization, so far as it can be said to have existed in the house during the last session of congress) the definite conclusion was arrived at not only that these class propositions were wrong morally and incorrect in economics, but that they could safely be opposed politically—owing, of course, to the confidence which these men and their organization had in an ultimate understanding, on the part of the voters in the various states and congress districts,

of the right and wrong of the question, where the labor issue in politics was raised. The Democratic leaders, and the new Democratic organization of the house, cannot be expected at first to have this confidence, especially since many individuals in that party have committed themselves openly and continuously in favor of the labor measures, partly, no doubt, however, for the reason that they have been in the minority and not responsible. But their leaders and committees, and their general organization, will almost surely see, just as the Republicans have seen, that these propositions are wrong and incorrect, and after a series of legislative campaigns covering years it may again be said, as of the party now in power, that the party then in power turns its back upon these measures. But this must at best be an unsatisfactory situation to those who long to see the labor question settled, or some near approach to a settlement of it arrived at.

Evidently the long-drawn out and troublesome campaigns involved in defeating bills in committees and on the floor of one or the other of the two branches year after year must be gone through endlessly in the case of one party or another, so long as a condition of ignorance or indifference on the part of the public to the vital interest which it has in this question continues. If the general public were informed as to the inherent evils of coercive unionism, and realized that, in the face of efficient defense organization by employers, the only resort of organized labor in its effort to perpetuate its coercions and violence was in politics, then that general public would immediately assent, as a political proposition, to the election, and re-election, and promotion of men of either party, as any constituency might require, who stood resolutely against any class labor legislation whatever. There would then be no need of the long drawn-out campaigns covering years required to convert committees and individual members of either branch to an appreciation of the righteousness of the employers' cause. Legislative leaders of either party, members of committees, party organizations themselves, would soon discover that their only course of political safety lay in withstanding discrimination in favor of anybody, and in time even organized labor might be expected to cease to desire class legislation for its own benefit,—for this reason, if for no other, that the effort to obtain it would be hopeless.

Is it an impossible dream? Not necessarily, provided the hand-to-hand fighting in legislative and political campaigns be resorted to willingly as occasion demands, and it the spread of the truth in reference to this one great question be undertaken with the spirit and the capacity for success which have characterized so many undertakings to which men of substance and brains have so often devoted themselves hitherto.

ASSETS OF CORNELLS

Are Not to be Sold—Court Decision Covers All Points Raised.

New York, Nov. 29.

The application of the receivers of the J. B. & J. M. Cornell Co., New York City, structural iron and steel contractor, for permission to sell all the assets, has been refused by the court and the receivers have been directed to continue their efforts to complete such contracts as are of value. The court said an examination of the contracts rendered it probable that a separation can be made between those upon which no work has been done and those which have been largely completed. As to the first class, while no binding instructions are given, it is recommended that they be sold or sublet if possible and if neither of these courses can be pursued after reasonable efforts, that they be abandoned. On the contracts largely under way, the court ruled that every effort must be made to push them to completion and that there should be no abandonment of this work until the receivers come absolutely to the end of their cash presently on hand or shortly receivable.

ST. LOUIS SHIPMENTS.

Receipts and shipments of pig lead and spelter at St. Louis for the last two weeks were as follows:

	Zinc and spelter.	Pigs of lead.
Receipts:—		
For the week ending Nov. 19..	119,510	55,990
For the week ending Nov. 26..	96,670	62,070
Shipments:—		
For the week ending Nov. 19..	103,970	19,090
For the week ending Nov. 26..	91,280	28,290

Chicago Offices.—J. B. Fisher, recently appointed sales agent at St. Louis for the Sloss-Sheffield Steel & Iron Co., of Birmingham, Ala., has opened offices in room 1113 Central National Bank building, St. Louis. Mr. Fisher has been with the Sloss-Sheffield company several years, and is well known to the trade.

ENCOURAGING CONDITIONS

In Kansas City—Cleveland Mill Takes Orders.

Kansas City, Mo., Nov. 28.

"Holland," the New York financial writer, says, "no development west of the Mississippi river has commanded such attention and admiration as that of which Kansas City is the exponent and the center." A close observation of recent sales and inquiries in machinery, iron and steel lines; reports of actual and anticipated purchases by railroads, manufacturing plants, municipalities and foundries located within this and extending as far west as Denver territory, denotes an encouraging state of business affairs. Money is more plentiful and banks are responding more readily to loans. Stocks and bonds are finding a decidedly easier market.

A Cleveland mill has secured practically all of the plate and heavy sheet business which has developed recently in this city. Numbered among the orders taken are four cars for the Kansas City Southern Railway Co., and several cars for a local boiler shop.

Contracts aggregating $5,000,000 are to be awarded this winter by the Kansas City Terminal Railway Co., in anticipation of construction, to commence in the spring of 1911 on the Union Depot building, viaducts, etc.

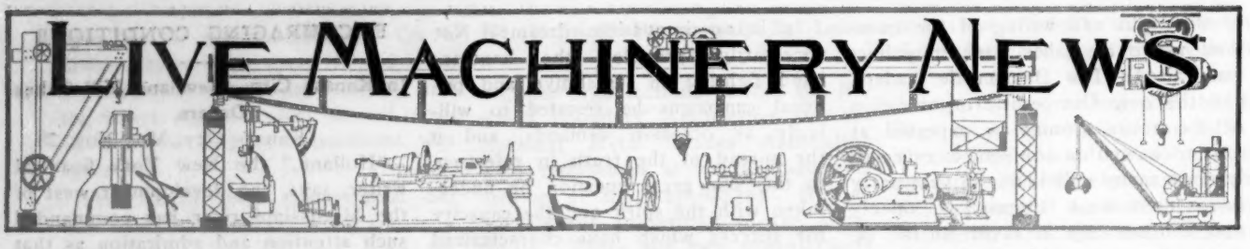
Foundries have offered a local sales agent several hundred tons of No. 2 southern pig iron for shipments over the first half of 1911, at $11.00, Birmingham. This business has been refused, $11.50 being the prevailing market on No. 2 southern for 1911 deliveries.

ORGANIZATION OF JOLIET ROLLING MILL CO.

The Joliet Rolling Mill Co., Joliet, Ill., whose incorporation with a capital stock of $150,000 was recently noted, has been organized to take over the mill of the Joliet Iron Products Co. The organizers of the new company include Israel Joseph, Jacob Eye, Adam S. Clow, Adam Groth, A. B. Scully and C. E. Woodruff. Mr. Joseph has been elected president and Mr. Groth treasurer. The mill was built originally in 1907, has four double puddling, one billet heating and two heating furnaces, one 22-inch and one 12-inch bar and guide mills. Its estimated annual capacity was 25,000 tons of bars, etc.

The Hupp-James-Holloran Foundry Co., Detroit, has increased its capital from $25,000 to $40,000.

LIVE MACHINERY NEWS



CLEVELAND

Improvement Noted in Machinery Market—Numerous Orders.

Last week again showed a slight improvement in the local machinery market. Numerous inquiries were received by dealers and sales were of a greater volume than for some months past. This condition, which has only been of two weeks duration, has been felt, up to the present time, only by the larger dealers and manufacturers, as most of the smaller concerns report no change in conditions. It is generally expected, however, that the present movement will soon result in greater activity throughout the machinery trade. The lines which show the most promise are the heavier branches such as cranes, hoisting machinery, agricultural implements and machinery, sugar refining equipment, locomotive cranes, etc. Woodworking machinery is, and, for some time has been, very dull. Machine tools of the lighter variety are improving somewhat. Drilling machinery has sold well lately and a few power presses have found a market. The Superior Drop Forge & Mfg. Co., a list of whose tool requirements was recently published, has now closed for the greater portion of its requirements. Electrical machinery appears to be somewhat dull at present, and second-hand machinery is also in slight demand. Some attractive lots are open to the trade, but find no purchasers.

The D. Connelly Boiler Co., which has been established at 938 West avenue, Cleveland, since 1875, will occupy its new plant at Ivanhoe road and the Nickel Plate railroad about Jan. 1. This plant consists of a 140 x 200-foot and 40-foot high boiler shop, a 50 x 80-foot power house, a 50 x 120-foot forge shop, a 30 x 50-foot two-story pattern shop, a 32 x 32-foot office building, and other structures. The boiler shop will be divided into three bays; the two side bays will be 40 feet wide each; and the erecting bay in the center will be 60 feet wide. Each side bay will be served by a 10-ton crane, furnished by the Cleveland Crane & Engineering Co., and the center bay will be served by a 20-ton crane, manufactured by the Alliance Machine Co., Alliance, O. The entire plant will be equipped with new and modern machinery, most of which has already been purchased, for the manufacture of boilers, tanks and general steel plate work. The power house will be equipped with a 75-kilowatt generator, and an air compressor with capacity of 1,000 cubic feet of air per minute.

W. H. Knight, president of the Cleveland Gas Meter Co., 2178 East Sixty-fourth street, has awarded a contract to C. A. Carson for the construction of a three-story and basement, 40 x 51-foot building of heavy mill construction. This building is to contain stamping and other machinery, as well as a power plant. It has not yet been decided, however, whether power will be furnished by a gas engine, or by electric motors provided with current from the Cleveland Electric Illuminating Co.'s system. The new building is to be completed in March.

The Gaeth Auto Co., Cleveland, which recently went into the hands of a receiver, has been taken over by the Stuyvesant Motor Car Co. The Stuyvesant concern will continue to make cars in the Gaeth plant at least for some time. Last week the Stuyvesant Co. purchased the plant of the Warren Mfg. Co., Sandusky, O., and its principal works will hereafter be in Sandusky.

The N. J. Rich Knitting Co., Ontario and St. Clair streets, Cleveland, will move next June into a large plant to be erected between East Fifty-ninth and East Sixty-third streets, and Curtiss and Euclid avenues, Cleveland. Besides operating, knitting and special machinery, the plant will contain a heating plant, a sprinkler system and elevators.

The Crucible Steel Forge Co., whose plant at 5812 Carnegie avenue, Cleveland, was destroyed by fire last July, has awarded a contract for the erection of a 45 x 80-foot, one-story, steel frame building. Some of the old machinery will be used but a quantity is to be replaced. The new building will be rushed to completion and will be operated shortly after Dec. 1.

The Warner & Swasey Co., 5809 Carnegie avenue, Cleveland, is rapidly completing work on the large addition now under erection, and expects to occupy it in a month or two. This concern has been crowded in its works for some time, and the company is considering the erection of another addition when the present one is finished.

Sealed proposals will be received by the director of public service, No. 104 City hall, Cleveland, until Dec. 12, for furnishing and erecting in the engine house at the Kirtland pumping station, Cleveland, two vertical, triple expansion, pumping engines, each of 25,000,000 gallons water per day.

Sealed bids will be received at the office of the director of public service, 104 City hall, Cleveland, until 12 o'clock noon, Dec. 12, 1910, for furnishing 45 5-ampere, 110-volt, 60-cycle, single phase, integrating watt meters for the municipal electric light department of the city of Cleveland.

C. E. Thompson, city clerk, Bremen, O., reports that the town has voted $20,000 worth of bonds for the construction of water works. The engineer has not yet been selected.

The Bauroth Machine Co., Toledo, O., has purchased a plot of ground in that city on which it intends to build a 40 x 100-foot machine shop, early next year.

The Damascus Brake Beam Co., Crosby road and the Nickel Plate railroad, Cleveland, has taken out a building permit for a power plant.

The American Steel & Wire Co., Cleveland, has been granted a building permit for the erection of a pumphouse on the Cuyahoga river.

The city of Portsmouth, O., has voted a $300,000 bond issue, the proceeds to be used for the construction of new water works.

Canton, O., has voted $125,000 worth of bonds for the extension of water works.

NEW YORK

General Electric Inquires For Large List—Little Railroad Buying.

The most important event of the week in the metropolitan machinery trade was the appearance of a part of the extension equipment list of the Pennsylvania General Electric Co., which machinery houses have been expecting for some weeks. Only about 30 machine tools are specified in the list. These are all very large machines, and the amount involved will probably exceed $200,000. It is understood that at an early date specifications on the lighter tools will be distributed, and that a total of upwards of $500,000 of machinery business will come into the market from this source before the new plant which is now under construction at Erie, Pa., is completely equipped. The railroads have placed very little business during the week, and buying by industrial corporations has also been inactive. Announcement has been made by the navy department, of acceptances of bids on the specifications put out about two weeks ago. The successful bidders on items are as follows: Manning, Maxwell & Moore, Inc., items Nos. 2, 5, 6, 7, 8, 11, 15, 21 and 22, at $13,637; Prentiss Tool Co., items Nos. 10, 16, 18 and 20, at $7,480; Niles-Bement-Pond Co., item No. 17, at $2,460; Montgomery & Co., items Nos. 3 and 4 at $60.60; Cleveland Punch & Shear Works Co., item No. 14, at $1,200; Westinghouse Air Brake Co., item No. 1 at $570; Jas. Clark Jr., Electric Co., item No. 9; Hisey-Wolf Machine Co., item No. 12, and Knox & Bro., items Nos. 23, 24 and 25.

At a recent meeting of the board of trustees of schools for industrial edu-

cation of Newark, N. J., plans were approved and contracts let for the new building which is to be erected at Summit street and Summit place, Newark. In both construction and equipment the institution will be of the most modern type. The building will cost close to $70,000, and it is likely that as much more will be spent for iron, steel and wood-working equipment.

The Fay Machinery Co., 126 Liberty street, New York, wants prices on a 150 to 200-kilowatt, 110 to 125-volt, direct current generator, direct-connected to simple or tandem compound engine, with rheostat and switchboard and a 500-kilowatt, 2,300-volt, three-phase, 60-cycle generator, direct-connected to cross-compound or Corliss condensing engine.

The Climax Boiler Co., Brooklyn, has purchased the plant on Pollock avenue near the West Side Connecting railroad in that city which was formerly operated by the West Pulverizing Machine Co. The ground space is 240 x 440 feet. It is expected that the plant will be improved and rearranged for the purposes of the purchaser.

The Bayonne Launch Co., East Thirty-fourth street, Bayonne, N. J., has incorporated with capital of $10,000. Bernhard A. Sinn, New Rochelle, N. Y., Leidy R. Shillinberger, 18 East Forty-second street, Bayonne, and Philip F. Botzong, Jersey City, are the incorporators.

The Barber Asphalt Co., it is reported, has acquired a large tract of land in the northern portion of Perth Amboy, N. J., and a large refinery representing an outlay of several millions will be erected upon the site. The company now has a large plant in Perth Amboy.

Plans are under way for rebuilding the plant of H. B. Smith & Co., Plantsville, Conn., which was almost entirely destroyed by fire early in the month. The cost of the contemplated improvements is estimated at $200,000.

Plans are being completed by Edward A. Howard, Bastable building, Syracuse, N. Y., for a 5-story brick, mill construction, factory building, 34 x 134 feet, for the Onondaga Bed Mfg. Co., 714 East Water street, Syracuse.

The Rochester Can Co. has plans in preparation by Architect J. Mills Platt, Rochester, N. Y., for a brick factory, 2 stories high, to be erected on Hague street, that city.

The American Cotton Oil Co. has purchased a lot 60 x 129 feet on Ferry road, West New York, N. J., on which an addition to its plant will be erected.

Contracts have been awarded by L. O. Koven & Bro., Jersey City, for the erection of a new power house, 50 x 75 feet, which is estimated to cost $25,000.

The Charleroi Foundry & Machine Co., Charleroi, Pa., has increased its capital stock from $4,000 to $12,000.

The Plainfield Union Water Co., Netherwood, N. J., will install new pumps and boiler and will increase the capacity of its plant.

The Century Steel & Iron Co., Buffalo, N. Y., is erecting an addition for the manufacture of converter steel castings.

The Eynon-Evans Mfg. Co., Philadelphia, Pa., is considering the installation of new furnaces in its brass foundry.

The Fairmount & Clarksburg Traction Co. will erect repair shops at Fairmount, W. Va.

CHICAGO

Machinery Trade Quiet—Small Railroad List.

While the Thanksgiving holiday interfered somewhat with the activity of the machinery trade last week, the sales, nevertheless, reached a fairly satisfactory total. Shipments of power plant and power transmission machinery continue heavy. A few railroads are showing a little interest in the machine tool market. The Rock Island, which purchased a few tools some time ago, is again in the market for additional equipment.

The Pontiac Motorcycle Co., Pontiac, Mich., is constructing a plant for the manufacture of motorcycles. The plant will consist of three buildings, one 45 x 208 feet, another 55 x 100 feet and a third, 55 x 128 feet. R. M. Brownson is president of the company. The following equipment is needed: Polishing and plating devices; oil burning furnaces suitable for steel treatment; oil brazing stands; portable annealing ovens and up-to-date tool equipment suitable for this line of manufacture.

Forsythe Brothers & Co., manufacturers of railroad supplies, Chicago, have purchased a tract of 23 acres at the crossing of the Grand Trunk and Illinois Central railroads, on which they will erect a plant costing several hundred thousand dollars. The plant will be built in sections, the first being a two-story machine shop, 100 x 141 feet, to cost $25,000.

Smith, Hinchman & Grylls, 810 Washington Arcade, Detroit, are taking figures on a one-story building, 65 x 304 feet in size, which will be erected at Wright and Adair streets, Detroit, for the Buhl Malleable Co., Arthur H. Buhl, president. The building will be used for a steel foundry. Its estimated cost is $30,000.

Daniel J. Albertson, engineer, Kalamazoo, Mich., is preparing plans and specifications for a hydraulic system for the Manistee County Electric Co., 256 Houseman building, Grand Rapids, Mich. Work on the new plant will be started in the early spring and a large steam auxiliary plant will probably be built in Manistee.

Contracts for the construction of a water works at Walworth, Wis., from the plans of George C. Morgan of Chicago, have been awarded as follows: Pumping machinery, to the Gould Pump Co.; tank and tower, to the Chicago Bridge Co., Chicago; valves, to the Ludlow Valve Mfg. Co.; total cost, $17,000.

The Beech Grove Construction Co., Indianapolis, expects to construct a substation at Twenty-fifth street and Churchman avenue, in Beech Grove. The building will be 26 x 34 feet and the motor generators will be supplied by Fairbanks, Morse & Co. Power will be obtained from the Indiana Light & Heat Co.

The L. J. Smith Locomotive Equipment Co., Kansas City, organized principally to overhaul and equip contracting machinery used by L. J. Smith, railroad contractor, and to also conduct a general locomotive repair business, has purchased the old Riverside Iron Works plant. The building will be repaired and necessary machinery installed.

Proposals will be received at the office of the constructing quartermaster, Fort Leavenworth, Kan., until Dec. 5, for one 40 to 45-ton standard gage locomotive, two standard gage air brake and air dump cars and two standard gage flat cars. Full information can be had of Capt. J. T. Mornoyle, quartermester.

John J. Quinlan, Muncie, Ind., representing a number of business men, has purchased two acres at Van Buren and Draper streets, Indianapolis, and will immediately erect a plant for the manufacture of boilers. A building will be erected at a cost of $20,000. Contracts for the structure have already been let.

Bids will be received by L. D. Chrismas, city clerk, Windsor, Mo., until Dec. 6, for the construction of a water works system, comprising a 75,000 gallon steel tank on a 100-foot tower, cast iron pipe, hydrants, valves, etc. Rollins & Westover are consulting engineers, Beals building, Kansas City, Mo.

The Security Stove & Mfg. Co., Kansas City, plan installing a 10-ton per hour cupola, a direct-connected motor and a positive pressure blower. The new equipment which this concern will install in its cleaning room it to be supplied by the J. D. Smith Foundry Supply Co., Cleveland.

A report has been circulated in the Chicago machinery trade that the Minneapolis, St. Paul & Sault Sainte Marie Railway Co. expects to build a car shop at Ruso, N. D. We are advised by the chief engineer of this road that no such construction is contemplated at this place.

It is reported that the Newaygo Portland Cement Co., Michigan Trust building, Grand Rapids, Mich., contemplates the construction of an auxiliary plant of about 1,000 horsepower, and is considering both a gasoline and a producer gas plant.

The Harrisonville Pump & Foundry Co., Harrisonville, Mo., and the Central Foundry Co., Webb City, Mo., are receiving figures on hand power cranes in both pendant and chain block type.

The Southern Railroad has commenced the reconstruction of its shops at Princeton, Ind., which were destroyed by fire. New machinery will be installed throughout.

The Johnson Bros. Co., Terre Haute, Ind., expects to be in the market for machinery for the manufacture of gasoline motors.

The Smalley Mfg. Co., Manitowoc, Wis., is erecting a two-story machine shop. This company manufactures farm machinery.

CINCINNATI

The Machine Tool Trade Continues Quiet.

New business continues to come forward in a somewhat uncertain and irregular manner, and machine tool plants, while apparently running at normal capacity, have small bookings ahead. The anticipated spurt that was predicted to manifest itself after the November elections has, as yet, failed to materialize, and the general opinion now prevails that it will be delayed until some time in the early spring. Manufacturers, however, are a little more optimistic regarding the action of railroads, and in view of the fact that several of the larger trunk lines have deemed it wise to do some buying of tools, believe that the movement will be more general within the next 60 days. The majority of the local foundries have rather light order books and little change is expected before the first of the year. In addition to the usual shop developments, several innovations are planned, not the least interesting of which is that undertaken by the Lodge & Shipley Machine Tool Co. Mr. Lodge has been working on a community idea for some time, with the result that this concern will shortly begin the erection of ten or twelve brick homes for its men, within a short distance of the plant. Each house is to contain six rooms and bath, and will be leased to workmen at terms that will return only a small interest on the investment.

Cincinnati is to have a trade catalog library. Vice President C. E. L. Thomas, of the Commercial Bureau of New York city, has arranged with H. E. Hall to become district manager. The work has the endorsement of the larger commercial organizations and is devoted to engineering and machine tool interests. The district office will contain duplicate sets of trade information furnished by the manufacturers of the central states. These will be printed in a number of languages. Among the local manufacturers who are interested and who endorse the project are the Lodge & Shipley Machine Tool Co.; Lunkenheimer Co.; J. A. Fay & Egan Co.; Edwards Manufacturing Co.; Houston, Stanwood & Gamble Co.; John Steptoe Shaper Co.; The R. K. LeBlond Machine Tool Co.; The I. & E. Greenwald Co., and the Triumph Electric & Ice Machine Co.

The Houston, Stanwood & Gamble Co., Cincinnati, reports trade just about on the same basis as last year at this time. H. M. Houston, who has recently returned from a trip through Texas, believes that the demand from the ginning trade will show considerable improvement next year. Several good export orders from Cuba and Mexico have been booked, and inquiries from the Pacific coast are very good at present. The company has designed and is now introducing a new four-valve engine up to 350 horsepower capacity, adapted for general power purposes.

The Schacht Mfg. Co., Cincinnati, has commenced moving into its new plant. A portion of the tools has already been placed, and the work will be rapidly pushed. The new buildings are 500 x 70 feet and three stories high. The company has sufficient ground upon which to place two more buildings the size of the present structure. The improvements will greatly increase the capacity of the plant.

Schumacher & Boye, Cincinnati, report a fair demand for their line of tools. During the last month orders were secured from the Missouri Pacific, the C., B. & Q. and the Santa Fe railroads that aggregated 50 large engine lathes. The shop is running full force and some business is now pending that it is hoped will result in satisfactory trade.

The Males Co., 1508 First National Bank building, Cincinnati, O., wants air compressors for Texas delivery, 900 to 1,000 feet of free air, and a 150-horsepower boiler for Texas delivery.

SEATTLE

Large Power Plant for Tacoma.

The department of light and water of the city of Tacoma will soon call for bids for the completion of its big Nisqually power plant. The remaining construction work is estimated to cost about $1,100,500, and the work will probably be let under a blanket contract with the exception of the machinery. Rough estimates of the construction work to be done are as follows: Steel bridge to carry pipe line across Nisqually canyon, $43,000; power house, $200,000; reservoir, $222,000; conduit and bridge to reservoir, $33,000; pressure pipes, $76,000; bridge abutment and piers, $6,500; machinery, including turbine pumps and generators, $150,000; other electrical equipment, $120,000; sub-station equipment, $160,000; transmission line, $90,000. The city will probably enter the market for its electrical equipment. A special bond election authorized the city officials to ask for bids on a municipal dock and two steel bridges. The two steel bridges will cost $543,000 and will be of vast benefit to the machine shops and foundries on the tidelands along the Puyallup river.

A. F. Coates, president of the Washington Portland Cement Co., has decided to greatly increase the output of his plant at Concrete, Wash. His company will soon award contracts for the erection of six buildings of steel and corrugated iron construction. Provision has also been made for the installation of a steel oil tank of 60,000 barrels capacity. The power plant will be greatly enlarged and a new steam turbine and generator, direct-connected, of 2,700-horsepower capacity will be placed. New units in the main grinding and tube mills will be installed and storage will be provided for 160,000 barrels of clinker. New office, laboratory and rock bins will also be provided.

The Whitestone Irrigation & Power Co. was incorporated this week and will soon begin the construction of a $25,000 power plant at Loomis, Wash.

MILWAUKEE

Extensions and Improvements to Foundries and Machine Shops.

Extensive plans for enlarging its plant during the next two years are being made by the Mandt Wagon Co., Stoughton, Wis. During the next summer a saw mill, 254 feet in length, will be completed and a large gear shop will also be built. In 1912, the buildings to be erected will include a two-story office structure, a four-story and basement box factory, and a three-story and basement building to be used for the wheel department. Other alterations are included in the plans, as well as the installation of a large quantity of new machinery. When this work has been completed more than 900 men will be employed in the works.

The new plant of the Wisconsin Motor Mfg. Co., at Forty-fourth avenue and Burnham street, Milwaukee, is rapidly nearing completion. The main building is 112 x 288 feet, with an office addition, 40 x 50 feet. A power plant, 50 x 50 feet, is also being erected. It is expected that the entire plant will be ready for occupancy by Jan. 1.

Although its new plant at Forty-sixth avenue and Rogers street has not been fully completed, several additions are being contemplated by the Sternberg Mfg. Co., Milwaukee, manufacturer of motor trucks. A new power plant, 50 x 50 feet, is being erected adjacent to the main building.

The Garfield building, recently leased for warehouse purposes by the J. I. Case Threshing Machine Co., Racine, Wis., is now being fitted up as a machine shop. A two-story addition is also being erected to the company's large boiler plant, which now covers an entire block.

Some of the furnaces in the new plant of the Wehr Steel Co., Forty-fifth and Gordon avenues, Milwaukee, are now in operation, and the remainder of the plant is rapidly nearing completion. Eight crude oil furnaces are being installed.

Equipment is now being installed in the new plant of the Racine (Wis.) Tool & Machine Co., and the buildings will be ready for occupancy in a few days. The old buildings will be occupied by the Armstrong-Holbrook Co.

The West Allis Iron Co. has recently been organized at West Allis, Wis., and building operations have been commenced on a new foundry building at Elm street and Seventy-fifth avenue.

Operations have been commenced by the Racine (Wis.) Iron & Wire Works in its new plant, recently completed.

The Matthew Lamont Co., Bay City, Mich., will build a new concrete factory for which power and woodworking machinery will be needed.

The Milwaukee Electric Railway & Light Co. will build a machine shop at Fortieth street and Cold Spring avenue, Milwaukee, to cost $20,000.

The Independent Electric Co., Inc., Milwaukee, Wis., will soon be in the market for machine tools.

PITTSBURG

Purchases Deferred Until After the First of the Year.

Developments of the past week indicate a better volume of business in heavy machinery in the near future, although it is not likely that any large awards will be made before the first of the year. Several large manufacturing interests are preparing estimates on the cost of extensions to present plants and for the building of new mills, but no assurance is given that this work will be undertaken until spring. Owing to the fact that the inventory period is close at hand, many of the companies are confining purchases to actual needs. Notwithstanding that all branches of the local trade have been reporting heavier inquiry all through this month, actual bookings for November have not been heavy, and the total amount of business handled has been lighter than in the preceding months. One of the encouraging features is that the railroads are putting out more inquiries and are buying tools and supplies in small lots for repair shops. Owing to the continued heavy buying on the part of public utility companies and traction companies, orders for electrical equipment in November have been heavy and all plants of the Westinghouse interest continue to operate full time. Iron foundries and machine shops continue to operate full time, although steel foundries have comparatively little business on their books. Builders of cranes report heavier inquiry, although actual bookings this month have been light.

Six brick buildings are being erected at Ridgway, Pa., to replace the planing mill of Hyde, Murphy & Co., which was destroyed by fire recently. The buildings include a power plant 80 x 90 feet, office building, 40 x 60 feet, main building, 100 x 300 feet, two kiln buildings, 25 x 100 feet, and a store room, 80 x 125 feet. A contract has been awarded to the Ridgway Dynamo & Engine Co. for the installation of power equipment, which will include a 250-horsepower steam engine, and the General Electric Co. has been awarded contracts for motors to operate each of the machines to be installed.

A contract has been awarded to the Westinghouse Machine Co., Pittsburg, by the San Diego Railway Co., San Diego, Cal., for two steam turbines of 1,500 horsepower capacity each, which will be used to drive electric generators of the same capacity to provide motive power for the railroad. The unique feature of this order is that it calls for the first installation of the new Melville-Macalpine reduction gear instead of the direct connection between engine and generator. The same company also is ordering a new 1,800-horsepower generator to be operated by other steam power plants.

The Holbeck Riverside Gas Power Co., Oil City, Pa., has been incorporated at Dover, Del., with a capital stock of $1,000,000. The incorporators are John D. Smithman, H. H. Smithman, and Joseph M. Jenckes, all of Oil City. The company will engage in the manufacture of engines, compressors, tanks and boilers, but as yet no announcement regarding plans for a plant have been made.

The Westinghouse Electric & Mfg. Co., Pittsburg, has been awarded a contract by the Republic Iron & Steel Co., for 79 crane and mill motors, aggregating about 5,000 horsepower, to be used in the steel company's new mills at Youngstown, O. The order also includes magnetic controllers for the larger motors and manually-operated controllers for the smaller motors.

Plans for the new plant to be built at Warren, O., by the General Foundry Co., Bradford, Pa., are practically completed and it is probable that contracts for equipment will be awarded in the near future.

The Pittsburg Emery Wheel Co., Pittsburg, will double the capacity of its plant. The company now ranks third as a manufacturer of emery wheels and grinding machinery in this country.

An addition is being built to the foundry of the Ridgway Machine Co., Ridgway, Pa., a subsidiary of the Niles-Bement-Pond Co. The new structure will be 35 x 200 feet.

DETROIT

Automobile Trade Quiet and Demand for Equipment Light.

There was little activity in the machine tool and equipment trade in Detroit last week. The dealers have all gone over their prospects in hopes of finding some forgotten deal that might be dug up and revived into life, with the possible hope of an order coming to reward their efforts. One feature that is holding back business is the length of time it is taking the General Motors Co. to send checks to the merchandise creditors in this district. If this money was put into circulation it would prove a great stimulant to trade.

The Detroit Show Case Co., Detroit, is making rapid progress on the construction of its new building. It is 60 x 140 feet, three stories high, and will be fitted up for the manufacture of metal and wood show cases.

The Buhl Malleable Co., Detroit, is preparing to make some extensive additions to its foundry and machine shop. Quite an attractive list was handed to the trade this week for estimates.

An item of interest in connection with the automobile trade is that the Ford Motor Car Co. Detroit, shipped 789 cars to customers in the month of October, and 830 cars thus far in November.

The board of education, Detroit, is preparing a list of machinery that will be required for the new manual training department of the Cass High school.

The Detroit Edison Co., Detroit, has taken out a permit for an addition to its power house in West Jefferson street, to cost $40,000.

The Ross & Young Machine Co., Detroit, has taken out incorporation papers with a capital of $35,000.

TORONTO

Canadian Trade Active and Future Outlook Bright.

Machinery manufacturers are generally busy with a fair amount of orders on hand. Owing to the unusually fine and open weather prevailing throughout November, building and railroad construction have remained active to a later date than usual, so that the slackening off of business, which is generally experienced with the approach of winter, has been much less pronounced than in most seasons. The outlook for a heavy demand in the spring and the healthy financial conditions obtaining in the west, appear so favorable for a continuance of prosperity that in the absence of orders manufacturers will have less hesitation than formerly in keeping the plants at work on stock, in anticipation of market requirements. Electrical equipment for the local distribution plants in connection with the provincial hydro-electric transmission system is much in requisition, and the demand for mining machinery for the Porcupine gold camp is of growing proportions.

The Ontario Wind Engine & Pump Co. reports a marked revival of the demand for sprinkler tanks for fire protection purposes. The Chapman Engine & Mfg. Co., Ltd., of Dundas, affiliated with the Ontario Wind Engine & Pump Co., is refitting the old Dundas cotton mills building for its requirements, and preparing to start active operations in the spring. The principal output will be gasoline engines, and the power used will be electricity supplied by the hydro-electric transmission system.

Steel & Radiation, Ltd., Toronto, is preparing to erect a factory next spring on the site recently secured by them in Montreal, to cost between $400,000 and $500,000. The principal lines to be manufactured will be boilers, radiators, soil pipe, range boilers, expanded metal re-inforcement, lath, and steel sash. The plant will include a machine shop and foundry.

The Canadian Westinghouse Co., Ltd., Hamilton, Ont., has obtained the contract from the Porcupine Power Co., Ltd., for generators and switchboard apparatus of 3,000 horsepower capacity. Turbines of a similar capacity have been ordered from the S. Morgan Smith Co., York, Pa.

A merger is being effected between the Diamond Arrow Motor Car Co. and the Modern Machine Co., both of Ottawa, for the establishment of a motor car plant. The capitalization will probably be about $400,000, and other interests may be included.

The Lake Superior Corporation, Sault Ste. Marie, last week put in operation, at the new power plant, the first of eight gas-blowing engines to be used in connection with the blast furnaces. This is the first introduction of gas-blowing engines into Canada.

The Winnipeg board of control, Winnipeg, Can., is calling for tenders for a 500-kilowatt motor generator set for the electrical distribution system, bids to be received to Dec. 15.

The Anthes Foundry, Ltd., Toronto,

is preparing to put up extensive storage sheds in connection with its plant, having a floor space of 60,000 square feet.

The Manitoba Bridge & Iron Works, Winnipeg, Man., is in the market for a belt-driven air compressor of 700 cubic feet capacity.

Englehart, Ont., will issue $30,000 worth of bonds to construct a hydro-electric power plant.

The Thomas Laughlin Co., Hancock street, Portland, Me., is erecting a new machine shop.

The Cummings Brass, Iron & Wire Co. will build a factory at Winnipeg, Man.

LOUISVILLE

The National Metallic Table Slide Co., Louisville, has been incorporated with $15,000 capital. The company will manufacture a metallic table slide patented by Louis A. Wiedmann, of Louisville. The other incorporators are William Heeb and G. A. Ellerkamp. Stamping machinery is to be ordered at once.

The Lexington & Interurban Railway, Louisville, which is in the market for a large amount of new equipment, intending to install practically a new plant, has begun its purchases with orders for a 500-horsepower boiler from the Babcock & Wilcox Co. and two feed-water boilers from Henry R. Worthington.

The Louisville & Nashville Railroad is constructing a new machine shop at Russellville, Ky. A boiler will be required, as well as a large amount of machine shop equipment. The repair shops of the Queen & Crescent Route, which has headquarters in Cincinnati, will, it is reported, be located at Somerset, Ky.

W. E. Caldwell & Co., Louisville, have asked for prices on two 125-horsepower tubular boilers and a 200-horsepower engine, all second-hand, to be used in a plant in southern Ohio.

The Morrow Mfg. Co., Wellston, O., is erecting a foundry and is enlarging another building which it recently purchased. Considerable equipment will be required.

The Jewel Carriage Co., Carthage, O., has increased its capital stock from $250,000 to $450,000. Machinery will be installed for the manufacture of automobiles.

The American Automobile Co., Louisville, Ky., will install machine tool equipment for the manufacture of motor cars at its New Albany, Ind., plant.

It is reported that the Louisville & Nashville Railroad will spend $19,000 in making improvements in its shops at Etowah, Tenn.

The J. B. Masson Co., Louisville, will buy a steam power elevator for installation in a new warehouse now being erected.

The Johnson Bros. Co., Terre Haute, Ind., expects to be in the market for machinery for the manufacture of gasoline motors.

Cadiz, Ky., is considering the establishment of a lighting plant.

MISCELLANEOUS

The Marine Boiler Works, Toledo, O., organized only a few years ago, for the manufacture of marine boilers, has decided to extend operations and will make a large addition to its plant. A building, 100 x 80 feet, is to be erected in front of its present plant, which is 120 x 200 feet, giving a ground floor space of 32,000 square feet. The company, which employs over 100 men at the present time, does not expect to confine its product to marine boilers in the future, but will build boilers of all kinds.

P. A. Orton, H. G. Steinbrenner and E. B. Ayres have organized the Orton & Steinbrenner Co., at Huntington, Ind., and will establish a factory in that city for the manufacture of heavy machinery. The company has been incorporated with an authorized capitalization of $200,000.

A. Anderson and W. S. Averill, Claresholm, Can., are planning the eretion of a modern plant at Great Falls, Mont., for the manufacture of threshing machines.

The Gila Valley Electric, Gas & Water Co., capital $100,000, organized at Globe, Ariz., by A. G. Smith, is to erect a power house near Safford, Ariz.

The Willys - Overland Automobile Co., Toledo, O., has installed 20 new drop hammers and has erected a large building for its drop forge department.

The Bennett Axle & Transmission Co., Detroit, is to erect a new factory for the manufacture of transmission gears and automobile accessories.

The Davis Expansion Boring Tool Co., St. Louis, Mo., has re-organized. A new plant will be erected for which new equipment will be required.

The Waterbury Farrell Foundry & Machine Co., Waterbury, Ct., is contemplating the erection of an additional machine shop building.

The Parker Iron Works, San Bernardino, Cal., will double the capacity of its plant. The company does a general machine shop business.

The H. D. Hayward Weaving Mills, Franklin, Mass., will erect a power house next spring to be equipped with steam turbines.

Moultrie, Ala., is considering the installation of a 100-kilowatt generator and a 200-horsepower engine, with switchboard, etc.

The Syracuse, N. Y., Safe Co. has purchased the Phoenix foundry and will enlarge the latter and install new equipment.

The E. P. Reed Co., North Abington, Mass., is building a coal pocket and will require conveying machinery.

The Minneapolis, Minn., Gas Light Co. will erect a one-story boiler house and a three-story generating plant.

The Day Automobile Co., Detroit, Mich., will build and equip a plant for the manufacture of automobiles.

John Westover, Inc., Lincoln, Neb., operating a structural steel works, will erect a foundry and other shops.

The Portland Railway, Light & Power Co., Portland, Ore., will erect a 15,000-horsepower power plant.

BRITISH IRON MARKETS.

Political Unrest Has Influenced Pig Iron.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Nov. 19.

Pig Iron.—The Middlesbrough market has been materially affected this week by political unrest and the depressing influence of the boilermakers' lockout. A meeting of the shipbuilders at Carlisle on Thursday proved entirely abortive in regard to the lockout, and the effect on the pig iron market was immediate. Stocks continue to increase, so that by the end of next week there will be half a million tons, of which 450,000 tons have accumulated within two and a half years. No. 3 Cleveland pig iron reduced yesterday to 49s 6d ($12.12) or a fall of 2d on the day, while warrants similarly declined 2d, making the selling figure 49s 4d ($12.08) or only ½d over the minimum price prevailing early in October. Other districts have suffered less from the shipbuilding stoppage. In regard to ordinary Cleveland iron, there is a growing belief that the production is excessive, and will have to be reduced. Since the beginning of the month 11,000 tons have been added to the stocks in Connal's stores.

Finished Department.—The only dullness traceable in the finished iron and steel department is attributable to the continuance of the lockout which prevents shipbuilders from taking deliveries of plates, angles, and other specific shipbuilding material. The general volume of trade is increasing, and some very big shipbuilding orders have been given out during the last few days. At last the improvement has touched the rail department, in which the various requirements at home and abroad which have developed during the last few days, total about 70,000 tons.

Belgian 2-inch billets have been put up this week another shilling, making the selling figure 94s ($23.02). This has benefited the British makers somewhat, and they are producing at their utmost capacity. Galvanized sheets have weakened a little this week, buyers being able to place orders at a reduction of 5s per ton. Tin plate makers are full of work, although inquiries are not quite so active as they were.

The foundry now being constructed by the International Harvester Co., just west of its present plant, near Milwaukee, is entirely under roof, and will probably be placed in operation by Jan. 1. It is estimated that when completed the foundry will cost about $75,000.

POINTERS ABOUT NEW BUSINESS

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers:—

The following manufacturing companies have filed articles of incorporation:

The Central Machine Works, Omaha, Neb.; $25,000; by G. E. Selander and C. G. Bolin.

The Cincinnati Machinery Co., Cincinnati; $60,000; by A. Williams, J. W. Daly, Thomas H. Kelley and F. M. Kelley.

The Troy Foundry Co., Troy, O.; $10,000; by J. W. Merkle, Jacob Lust, L. H. Shipman, G. Miller and Louise E. Eichts.

The Gath Machine Tool Co., Buffalo; $10,000; by Andrew L. Gath, Owen B. Augspurger, George A. Orr, George J. Cochrane and Henry L. Jauch.

The Norwalk Drilling Tool Co., Norwalk, O.; by Edgar G. Martin, E. O. Boughton, G. P. Hogan and C. P. Venus; $10,000 capital stock.

The National Gas Machine Co., St. Louis, Mo.; $100,000; gas machinery and devices for making and supplying gas; by Bert F. Fenn, M. Laux and R. G. Lewis.

The Swind Machinery Co., Philadelphia; lathes, drilling and boring machines, planers, etc.; $25,000; by B. D. Swind, 157 Luray street, Philadelphia.

The American Shoe Machinery & Tool Co., St. Louis, Mo.; machinery and tools; $15,000; by Abraham Block, Benjamin Medalie and Louis A. Block.

The Standard Casting Machine Co., St. Louis, by Martin Felhauer and James M. Allen, E. M. Felhauer and L. F. Allen; $25,000; machines for casting aluminum, bronze, etc.

St. Louis Concrete Machinery Co., St. Louis, Mo.; to manufacture concrete machinery; $50,000; by Breckenridge Morehead, R. L. Gurney and George W. Parisho.

The Toombs Roller Bearing Wheel Co., St. Louis, Mo.; roller bearing wheels; $50,000; by J. M. Toombs, B. S. Adams, Thomas J. Edwards and W. A. Toombs.

The Joliet Rolling Mill Co., Joliet, Ill.; $150,000; general steel and iron manufacturing, machinery and supply business; by T. F. Donovan, J. L. O'Donnell and J. A. Bray.

Oakley Foundry & Engineering Co., Manhattan, N. Y.; machinery, etc.; $10,000; by James G. Gregg, John T. McGovern, Clarence W. Gormly, 141 Broadway, New York City.

The St. Paul Machinery Mfg. Co., St. Paul; $450,000; an amalgamation of the St. Paul Ditcher & Carrier Co., and the Dovetail Box Machine Co.; by John E. Burchard, Walter B. Kelly, Julian N. Kirby and Charles M. Powers.

New Construction:

The Hess Steel Casting Co. is taking estimates on plans for a one-story foundry and machine shop, 40 x 320 feet, to be erected at Bridgeton, N. J.

The Richmond Iron Works Corporation, Richmond, Va., is erecting new shops to be used for the manufacture of automobiles.

The Heer Engine Co., Portsmouth, O., has received bids for the construction of a proposed new building, work on which will be commenced when the weather is favorable.

The construction of a new mill building at the Sharon, Pa., plant of the Sharon Steel Hoop Co. has been commenced by the Weymer-Harris Construction Co., Youngstown, O., and the work will be rapidly pushed along to completion.

The James Foundry Co., Clyde, O., manufacturer of car couplers, recently placed its plant in operation. The foundry is 60 x 80 feet; cleaning room, 25 x 32 feet; machine shop, 30 x 200 feet, and the power house 16 feet square.

The Maritime Edge Tool Co., Eastport, Me., is building an addition to its plant, 31 x 80 feet, and is also raising about 4 feet a dam, from which it secures its water supply. The added facilities will largely increase the company's output of edge tools.

It is expected that the new blacksmith shops of the Allis-Chalmers Co. will be in operation by Jan. 1. The shops, which have been a year in building, will be equipped with six powerful forging hammers, one of the six being the largest steam hammer in America.

Kelly & Jones Co., Greensburg, Pa., is erecting a four-story building, of concrete construction, which will embody the newest ideas in brass foundry construction. The foundry will be located on the top floor, thus providing for carrying off all fumes, and the castings will be dropped from floor to floor until finished.

The Baldwin Forge & Tool Co. is rapidly completing its new plant now in course of construction at Parkersburg, W. Va., to which it expects to remove its business from Columbus, O. The machinery is now being installed, and it is expected that the works will be operating soon after the first of the year.

The Franklin Brass & Foundry Co., Reading, Pa., has taken out a building permit for a foundry on the north side of Schuylkill avenue at River road. The building will be one-story, of brick, 47 x 72 feet. When the structure is completed, the company will remove there from the site of the old Johnston foundry.

Additions which will furnish 18,000 square feet of additional floor space for the plants of the Metal Products Corporation and the Screw Machine Products Corporation, Providence, R. I., are being projected. They include the construction of a second story, 60 x 215 feet, and an addition to the present building, 50 x 60 feet.

Banner Mfg. Co., Ferdinand, Ind., manufacturing Banner force and lift pumps, advising respecting some recently noted new construction, says that it is erecting a building 40 x 88 feet which it will occupy as a foundry and machine shop. It proposes to install a 24-horsepower engine and boiler, two pipe machines, four lathes, three drill presses and complete foundry equipment.

T. E. Matthews & Bro., Martinsburg, W. Va., proprietors of the Tuscarora Foundry & Machine Works, advise that they are rebuilding their plant, recently damaged by fire. The machine shop and foundry occupy a building 40 x 123 feet, and the blacksmith shop 18 x 24 feet. The shops will be occupied by Dec. 20. No additional machinery equipment is required at present.

The Seitz Crucible Steel Foundry Co., Monroe, Mich., a subsidiary of the Seitz Automobile & Transmission Co.,

is building a plant which will include two main buildings, each 50 x 140 feet, while on each side will be wings 26 x 140 feet. An office is being constructed, 61 x 126 feet. It is proposed at this foundry to turn out all the castings that may be required by the Seitz Automobile & Transmission Co.

The Dempster Mill Mfg. Co., Beatrice, Neb., advising respecting extensions to its foundry, says that the addition it is building is 80 x 100 feet, and is for the purpose of increasing its foundry capacity, which up to this time had not been adequate. The company has purchased all the needed machinery equipment. It manufactures a line of pumps, water tanks, well drilling machinery and other farm machinery.

General Industrial:—

The Ingle Machine Co., Rochester, N. Y., has increased its capital stock from $10,000 to $70,000.

The S. G. Taylor Chain Co. has purchased a site at Hammond, Ind., on which it is said it plans to locate its Chicago and Maxwell, Ind., plants.

Martin & Wester, Port Washington, Wis., advising respecting a recently noted fire at their plant, say that it was only partly damaged, the loss being placed at $350.

The American Bridge Co. has let contracts for erecting 190 out of 300 houses for employes of the company at Gary, Ind. Of the houses 19 will be built at once, and the remainder

Stockholders of the Niles-Bement-Pond Co. will hold a special meeting, at Jersey City, Dec. 15, to change the date of the redemption of the preferred stock, which is subject to call in 1911 at 105.

The Barnes Motor Co., Detroit, formerly the Anhut Motor Co., has filed a voluntary bankruptcy petition. Liabilities are placed at $64,242.33, and assets at $143,540.75 at their face value. The attempted reorganization made little headway.

The re-organization of the Cotta Transmission Co., Rockford, Ill., has been confirmed by the federal district court of Chicago, and the concern has resumed business. It went into the hands of a receiver some time ago. Most of the creditors have accepted the terms offered.

C. J. Carlson, who has had 35 years experience in brass foundry work, has established a plant at 103 Hart street, New Britain, Conn., for the manufacture of brass, bronze and other non-ferrous metal castings. The shop has a capacity of from 500 to 1,000 pounds per day.

The sale of property of the Reliable Foundry Co., Fort Madison, Ia., to Harvey J. Rigg, which was made on Sept. 17, has been ordered vacated by a federal court sitting at Chester, Ia. The court has referred the matters concerned to W. E. Blake, Burlington, Ia., as special master.

It is reported that on Dec. 1, the Fort Wayne Rolling Mill Co., Fort Wayne, Ind., will pay off the last of an indebtedness of $135,000 and the property will be turned back to the original owners. This concern, for five years, has been operated by a holding company composed of stockholders and creditors.

The Lebanon Chain Works and the West End rolling mills, Lebanon, Pa., have been ordered sold under foreclosure proceedings brought by three trust companies, trustees for mortgages aggregating $550,000. The plants were controlled by the Iron & Steel Products Co., now in the hands of receivers.

Standard Welding & Mfg. Ci., Buffalo, which was recently incorporated, advises that it will do a general custom welding business and make sheet metal specialties. Its office and plant are now fully equipped and ready for business at 951 Main street, Buffalo. The president is Tromas H. Muffitt, formerly vice president of the National Welding & Mfg. Co., Buffalo, and its secretary and treasurer is John L. Heider.

Notices have been received by stockholders of the Union Switch & Signal Co. of a special meeting to be held Dec. 14, when action will be taken on the proposed stock increase. Directors on Oct. 7 decided upon the meeting. It is planned to increase the capitalization from $2,500,000 to $5,000,000, 60 per cent of the increase going to stockholders as a stock dividend, and the remaining 40 per cent to be held in reserve to provide working capital as needed.

The Punches Repeating Arms Co., 2486 Detroit avenue, whose incorporation was recently noted, advises that is expects to manufacture a general line of fire arms. Its models will probably be completed within 60 days. So far, the company has not fully decided what equipment it will install. The following officers were elected at its organization: President, B. W. Punches; vice president, Otto Koehler; secretary, E. W. Doherty; treasurer, V. D. Hoffman; general manager, William Whitaker.

The Simplex Tool & Supply Co., of Boston, Mass., recently bought out the business of the United States Gas Furnace Co., Providence, R. I., and this business will be carried on by the Simplex company at the old address of the United States company. The business is being greatly enlarged; the factory is being re-constructed along modern ideas, and offices and warehouses are being opened in the principal cities of the country. The officers of the Simplex company are: President, H. B. Eaton; treasurer, F. A. Stoddard; general manager, W. H. Stoddard.

The Eastern Machine Screw Corporation, New Haven, Conn., which was recently organized, is installing new machinery in its plant on Washington street, and is booked with orders for six months ahead. The company was organized with a capital of $90,000, and has these officers: President, Norris S. Lippitt, Norwich, Conn.; J. E. Hubinger, vice president, New Haven, Conn.; second vice president, William H. Gates, Hartford; treasurer, Walter S. Garde; secretary, Benjamin B. Greene; Arthur J. Dawley, Robert O. Eaton, J. Henry Roraback and Solomon Youngerman, directors.

Fires:

The Laramie Rolling Mills, operated at Laramie, Wyo., by the Union Pacific railroad, were seriously damaged Nov. 9.

The works of the Irvington Smelting & Refining Co., Newark, N. J., were damaged Nov. 17, the loss being estimated at $7,000.

The plant of the Philadelphia Iron Works at Nineteenth and Shamokin streets, Philadelphia, was damaged to the extent of about $20,000 Nov. 21.

The plants of the Caldwell Lawn Mower Co. and the Lackawanna Mfg. Co., Newburgh, N. Y., were badly damaged, Nov. 11, the aggregate loss being estimated at $100,000.

The plant of the Crown Iron Works Co., 1301 Tyler street, N. E., Minneapolis, was seriously damaged, Nov. 10. The loss, which was estimated at $20,000, is fully covered by insurance.

The foundry and machine shop of J. C. Adlon, Las Vegas, N. M., was badly damaged Nov. 15, the loss being estimated at $7,000, with insurance to $4,050. It is the intention of the owner to rebuild.

The iron foundry of Levering Bros., of Baltimore, located at York, Pa., was damaged by fire Nov. 16. It is estimated the damage will amount to about $8,000. The York plant was devoted to the making of castings for railroad construction, for which the company has a large amount of output under contract.

A Modern Forging Hammer

The tendency in modern shop practice, especially in the iron, steel and allied industries, is toward centralization of the power plant and to reduce the steam piping system to a minimum. Most new, and many of the older, shops avail themselves of the electric current as the medium for the transmission of power, and several of the principal steel plants of the world even drive the largest rolling mills direct by electric motors, but until recently, the heavy forge shops were still dependent on steam for their operation, as the power hammers available were suitable for relatively light work only.

The Nazel Engineering & Machine Works, Philadelphia, is now supplying a hammer known as the Beche air hammer, which has already found favor among some of the leading locomotive builders, steel works, implement and machinery manufacturers and technical schools. This hammer has a number of interesting features, among which is that, being self-contained, and providing its own compressed air supply, it can be installed wherever belt or electric power is available; in fact, it is broadly claimed to be the only forge hammer that can be successfully geared direct to the motor. The hammer embodies over 30 years' experience in the building of hammers worked by steam and compressed air, and various types of pneumatic power hammers, and, while its introduction in this country has been quite recent, it is said that there are now over 1,500 in use throughout the world, in various services. It was originally introduced with the idea merely of meeting cases in which a sufficient supply of steam was not available to operate a steam hammer. It is said to have proved so satisfactory, however, both as to efficiency and economy, that it is now in many instances even replacing steam hammers.

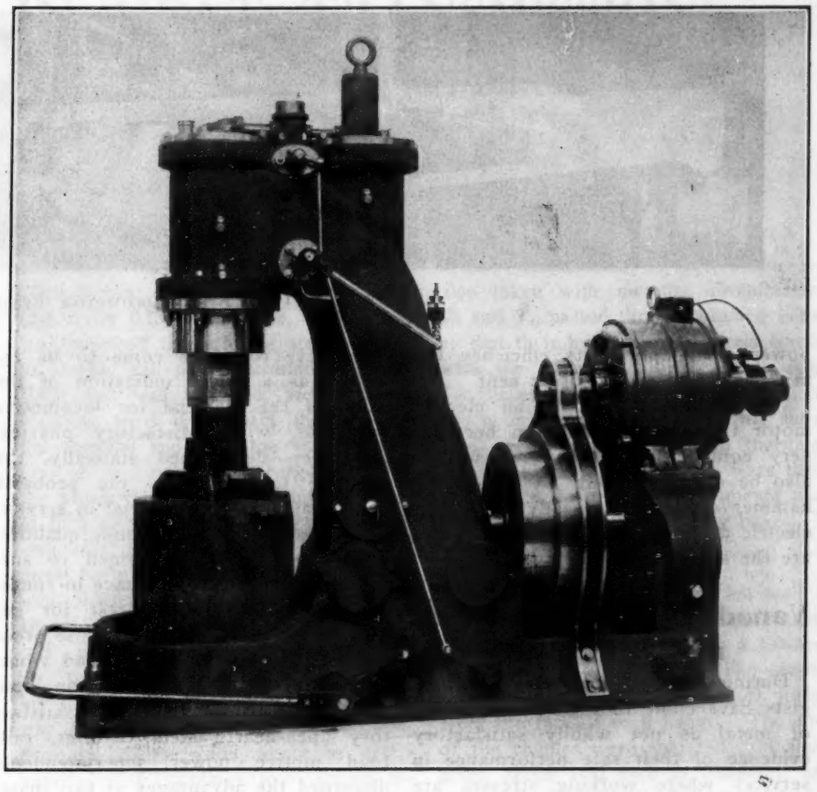


FIG. 1—THE BECHE MOTOR-DRIVEN AIR HAMMER.

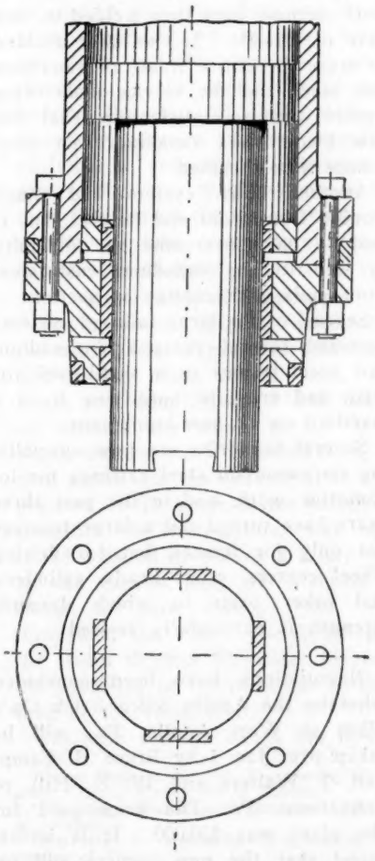


FIG. 2—SECTIONS OF BECHE HAMMER.

The general design of the Beche hammer is illustrated in Fig. 1, which shows one of the smallest of these hammers. In construction the machine is very simple. The hammer frame is in one piece, which is fastened to the bed plate; the anvil block is separate. The working parts consist of two cylinders, in one of which a piston operates, actuated by a connecting rod attached to the motor-driven crank shaft, and in the other the ram, or hammer head, sliding vertically on closely fitted guides, operates by vacuum and compressed air, produced by the double-acting piston in the first cylinder.

Another novel feature of this hammer is the construction of the ram or hammer head, shown in Fig. 2. This is in no way attached to any other part of the hammer; it is a hollow one-piece forging, bored from solid stock, and designed for long wear and severe service. The ram cylinder head has a central extension which enters the hollow ram, thus forming an air cushion against which the ascending ram reacts. The hammer is equipped with two air valves, which not only simplify operation, but place the hammer under positive control at all times. When the valves are closed, the ram is held suspended, allowing space for the placing or manipulating of the work. When the valves are opened by means of the treadle or hand lever, the hammer goes into operation. The force of the blow depends on whether the valves are opened suddenly or gently, and is increased from the lighter stroke as the valves continue to be opened. The treadle and hand lever are operated independently.

The Beche hammer is built in six sizes with ram weights ranging from 66 to 770 pounds. As pointed out above, the energy for one blow is generated by two strokes of a double-acting piston. The capacity, therefore, in relation to ram weight is very great. The 770-pound hammer will, it is claimed, forge to advantage stock up to 9-inch round. Another feature of this new hammer is its economy in

VANADIUM CAST STEEL LOCOMOTIVE FRAME.

power consumption, its efficiency being claimed to reach 70 per cent.

When geared direct to an electric motor the whole installation becomes very compact, but the hammer may also be driven by belt. A belt-driven hammer can be very easily altered to electric drives, as all the principal parts are the same for either type.

Vanadium Steels in Locomotive Practice

During the past ten years metallurgists have come to regard static tests of metal as not wholly satisfactory evidence of their safe performance in services where working stresses are wholly or partly dynamic in character. The slow pull to destruction on a piece of steel unquestionably establishes its tensile strength, but in actual service the material is subjected to and must stand up under stresses other than static.

The dynamic, or alternating, impact tests have therefore come to be regarded as a better indication of the value of the material for locomotive parts, as, with satisfactory physical properties, determined statically, the dynamic test indicates the probable performance of the material in service.

Especially in their dynamic qualities, vanadium steels are claimed to surpass ordinary steels and have in consequence considerable interest for engineers and manufacturers whose problems center around shocks and vibrations with ensuing deterioration from fatigue. With the advent of satisfactory open-hearth steel castings, railroad motive power superintendents discerned the advantages of this material because of its superior static properties for the construction of locomotive frames which had previously been made exclusively from hammered forgings. Cast steel frames in general gave satisfactory results, being found statically strong enough for the service, but still there were frequent failures due to the fact that ordinary cast steel has insufficient dynamic strength to withstand the exigencies of modern service, and with the increase in size and weight of locomotives and the correspondingly heavier duty required of them, the ordinary cast steel frames have been more unable to meet these severe conditions.

VANADIUM CAST STEEL LOCOMOTIVE DRIVING WHEEL.

One of the large railroad systems of this country was having an excessive number of failures of wrought iron frames and the shops were with difficulty keeping the engines in commission. It was decided to replace sections of the wrought iron frames in the zone of breakage by pieces of vanadium cast steel welded into place. It is said that these parts never broke, but that in the same frames breaks subsequently occurred in the original wrought iron portion. Other vanadium steel sections were then welded in, and gave no trouble. It was later decided to make the entire frame of vanadium cast steel, and the service from these frames was so satisfactory that for new locomotives vanadium cast steel frames were specified.

Another large system had much trouble from front end failures, but is said to have overcome the difficulty by substituting vanadium cast steel front ends with change of section.

Several of the large railroad systems specified several years ago vanadium cast steel frames in a small way for trial, and are now specifying it as a standard on all new equipment.

Several foundries are now specializing on vanadium steel castings for locomotive work, and in the past three years have turned out a large tonnage not only for frames, but for driving wheel centers, cross heads, cylinders, and other parts in which dynamic strength is particularly desired.

Negotiations have been concluded whereby the Apollo Silica Brick Co.'s plant at West Apollo, Pa., will be taken over Jan. 1 by Bruce H. Campbell, J. Walters and W. H. Hill, of Johnstown, Pa. The price paid for the plant was $30,000. It is understood that the new owners will increase the capacity of the plant.

A STUDY IN HEAT TRANSMISSION*

Investigation of the Effect of Velocity of Flow on the Rate of Transmission of Heat Through Metal Walls

By J. K. Clement[1] and C. M. Garland.[2]

The following experiments, preliminary in nature, were undertaken with two objects in view; (1) to determine the effect of the velocity of the flow of the water on the heat transmitted through the walls of tubes; (2) to determine if the methods of experimentation used were applicable and desirable for a more extensive investigation of the subject, provided this seemed justifiable by the results obtained.

In the flow of heat from a medium, gaseous or liquid, in contact with a metal plate, to a medium in contact with the opposite side of the plate, there are three resistances to be overcome; the two film resistances, that is, the resistance between the liquid and the plate on each side, and the resistance due to the metal of the plate. In the case of liquids in contact with metal plates, it will be found that the first two resistances are considerable as compared with the resistance of the plate itself, and also that these film resistances depend upon the nature of the medium in contact with the plate, and the relative movement or agitation between the plate and the medium. Owing, therefore, to the multiplicity of media and to the state of these media, as found in practice, it was considered advisable to endeavor to determine the rate of flow (or transmission) of heat as a function of the three factors, temperature of tube, temperature of water and velocity of water.

Description of Apparatus.

The apparatus (Fig. 1) consisted of the steam jacket F provided with flanges and stuffing boxes at each end. The steam was admitted at C and bubbled up through the water in the jacket, which was kept at a constant level, and then passed out the exhaust at D. The pressure of the steam in the jacket, and therefore the temperature, was maintained constant by placing a safety valve on the exhaust pipe, and allowing the steam to blow through this valve throughout the tests. The bubbling of the steam through the water prevented the possibility of superheat due to throttling at the valve at C.

The tube through which the flow of heat was measured was a 1-inch Shelby cold-drawn steel tube, outside diameter 1.253 inches; inside diameter 0.985 inch, and walls 0.134 inch thick. This tube was centered through the steam jacket, as shown, and packed around the ends. Each end was threaded, and a flange coupling used to connect the tube on the entering end with the water supply pipe A, and on the discharge end with the swinging ell at B. Rubber gaskets, ¼ inch thick, were placed between these couplings; on the discharge end, a sheet metal baffle was inserted. Another baffle was inserted in the pipe A, about 18 inches above the tee. The object of these baffles was to break up the stream lines before reaching the thermometers T_1 and T_2. This was done in order that the average temperature of the water might be determined. The couplings were drawn together with insulated bolts. The insulation, together with the gaskets, was used to prevent the conduction of heat back on the tube. The water supply was taken from a constant head tank, located about 25 feet above the tube, which permitted a maximum velocity of about 17 feet per second. The velocity through the tube was regulated to suit the demands by means of a throttle valve placed in the pipe A. The steam supply was taken from the laboratory mains.

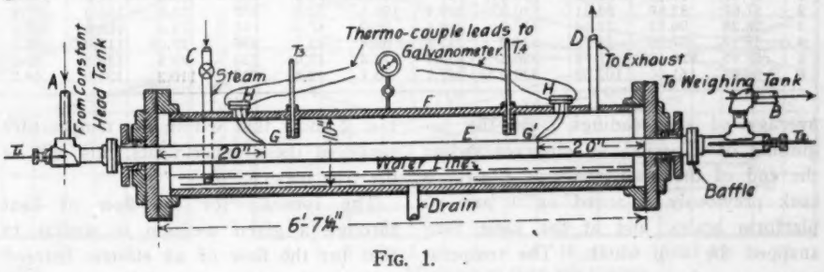


Fig. 1.

Measurement of Temperatures.

The temperature of the water, entering and leaving, was taken with mercury thermometers reading directly to tenths; these readings could be estimated to hundredths of degrees Cent. The thermometers were passed through the stuffing boxes and were in direct contact with the water. The baffles, above mentioned, insured the breaking up of the stream lines, so that very nearly the average temperature of the water was obtained. This was tested by changing the position of the thermometers.

The temperature of the steam was also taken with mercury thermometers T_3 and T_4, passed through stuffing boxes, so that their bulbs were in direct contact with the steam. Allowance was made for the error due to the pressure of the steam on the bulb. The drawing shows these thermometers placed in thermometer cups; the cups, however, were taken out before the regular experiments were begun and replaced by stuffing boxes.

Observations.

The temperature of the steam wall of the tube was taken by means of copper-constantan thermocouples and a Siemens and Halske millivoltmeter. The couples were located at G and G', 20 inches from the face of each flange. The ends of the couples were soldered into small holes, about 1/32 inch in diameter, and about 1/64 inch deep, which were drilled in the surface of the tube. The leads were brought out through small glass tubing to the pipe flanges at HH, and then between two rubber gaskets placed between the flanges.

The mean temperature of the tube was taken as the average of the temperature taken with the two couples, and is given in column 6 of Table I. All readings were taken in Centigrade units and later changed to Fahrenheit.

The velocity of the flow of the water through the tube was obtained by weighing the total amount discharged over a given period of time. This time was measured with a stop watch. In calculating the volume of water discharged, corrections were made for the different temperatures of this discharge.

Observations were taken over periods of from 3 to 12 minutes, depending upon the velocity of the water. During these periods, six readings of the thermometers were made, so that all of the temperatures given in Table I are the

*From Bulletin No. 40, Engineering Experiment Station, University of Illinois.

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TABLE I.

	Temperatures in Degrees Fahr.										Water.		Conductance.				
No.	Entering Water Av.	Leaving Water Av.	Rise.	Steam in Jacket.	Steam Wall of Tube. Mean.	Drop from Steam to Wall of Tube.	Drop through Metal of Tube.	Water Wall of Tube.	Water in Tube. Mean.	Drop from Wall of Tube to Water.	Weight of Water per Minute.	Velocity of Water in ft. per Second.	B. t. u. per sq. ft. per Minute.	Conductance of Film on Steam Side.	Conductance of Film on Water Side.	Conductance of Tube and Film on Water Side.	
1	56.92	66.75	9.83	210.9	.....	....	....	...	61.8	.....	318.0	16.07	1,615	.....	.....	.....	
2	58.20	70.25	12.05	210.9	.....	....	....	...	64.2	.....	263.0	13.29	1,638	.....	.....	.....	
3	58.55	71.90	13.35	210.9	.....	....	....	...	65.2	.....	236.0	11.93	1,628	.....	.....	.....	
4	58.63	73.20	14.57	210.9	.....	....	....	...	65.9	.....	204.3	10.33	1,538	.....	.....	.....	
5	58.20	74.82	16.62	210.9	.....	....	....	...	66.5	.....	176.0	8.90	1,512	.....	.....	.....	
6	57.89	75.28	17.39	210.9	.....	....	....	...	66.6	.....	147.0	7.43	1,322	.....	.....	.....	A
7	58.20	78.52	20.32	210.9	.....	....	....	...	68.4	.....	120.0	6.07	1,260	.....	.....	.....	
8	58.29	84.49	26.20	210.9	.....	....	....	...	71.4	.....	81.1	4.11	1,098	.....	.....	.....	
9	58.37	92.00	33.63	210.9	.....	....	....	...	75.2	.....	55.1	2.80	957	.....	.....	.....	
10	58.91	108.40	49.50	210.9	.....	....	....	...	83.7	.....	29.0	1.48	741	.....	.....	.....	
11	60.10	175.49	115.40	210.9	.....	....	....	...	117.8	.....	7.12	0.37	425	.....	.....	.....	
1	58.55	73.35	14.80	273.6	181.2	92.4	35.2	146	65.9	80	331.7	16.78	2,537	0.458	0.528	0.367	
2	58.32	78.12	19.80	274.4	202.0	72.4	34.7	167	68.2	99	244.4	12.37	2,501	0.576	0.421	0.312	
3	58.15	75.45	17.30	273.7	193.2	80.5	36.5	157	66.8	90	294.3	14.89	2,631	0.544	0.487	0.347	
4	57.90	80.94	23.04	273.9	203.0	70.9	33.1	170	69.4	100	200.5	10.15	2,387	0.561	0.399	0.300	
5	58.03	85.83	27.80	274.1	208.0	66.1	31.0	177	71.9	105	155.7	7.89	2,237	0.561	0.354	0.273	B
6	58.10	92.88	34.78	274.1	211.0	63.1	28.9	182	75.5	106.5	116.0	5.88	2,083	0.550	0.325	0.256	
7	62.87	120.46	57.59	274.1	235.0	39.1	23.8	211	91.7	119	57.6	2.94	1,715	0.730	0.240	0.200	
8	63.28	108.50	45.22	274.5	227.0	47.5	24.8	202	86.0	116	76.4	3.89	1,786	0.628	0.256	0.211	
9	63.73	145.90	82.17	274.5	239.7	34.8	21.0	219	105.0	114	35.7	1.84	1,516	0.724	0.222	0.187	
10	67.55	162.20	94.65	274.4	243	31.4	19.0	224	114.0	110	28.0	1.45	1,369	0.724	0.207	0.177	
1	67.54	85.00	17.46	306.6	219.9	86.7	43.6	176	76.3	100	348.4	17.64	3,144	0.605	0.525	0.365	
2	67.54	87.19	19.65	306.6	219.0	87.6	43.2	176	74.4	102	306.4	15.50	3,112	0.591	0.508	0.357	
3	67.54	93.30	25.76	306.5	230.5	76.1	41.6	189	80.4	109	226.0	11.43	2,998	0.655	0.459	0.333	
4	58.73	107.69	48.96	306.8	246.4	60.4	36.7	210	83.2	127	104.7	5.33	2,649	0.731	0.347	0.269	C
5	58.89	118.05	59.16	307.0	252.3	54.7	34.7	217	88.5	129	81.8	4.17	2,501	0.761	0.322	0.254	
6	59.27	129.70	70.43	307.0	255.7	51.3	31.3	224	94.5	129	62.0	3.17	2,256	0.731	0.291	0.234	
7	59.52	154.35	94.83	307.4	261.1	46.3	28.8	232	107.0	125	42.5	2.19	2,081	0.750	0.278	0.226	
1	57.67	80.50	22.83	330.2	220	110.2	55.2	165	69.0	96.0	338.4	17.13	3,995	0.606	0.694	0.440	
2	57.67	83.88	26.21	330.0	229.4	100.6	52.0	177	70.8	106.0	277.4	14.05	3,756	0.621	0.591	0.396	
3	58.28	90.92	32.64	330.0	233.1	96.9	47.8	185	74.6	110.0	205.0	10.39	3,455	0.594	0.524	0.365	D
4	58.17	97.90	39.73	330.2	241.8	88.4	45.1	197	78.07	119.0	158.7	8.06	3,260	0.614	0.457	0.331	
5	58.50	120.60	62.10	330.2	257.4	72.8	37.0	220	89.5	130.5	83.3	4.25	2,672	0.611	0.340	0.265	
6	58.89	161.50	102.61	330.2	267.1	63.1	32.8	234	110.2	124.0	44.7	2.31	2,370	0.625	0.318	0.251	

average of six readings. At the beginning of a period, an observer swung the end of the discharge pipe B over a tank previously balanced on a pair of platform scales, and at the same time snapped the stop watch. The temperatures were then read at equal intervals during the period. At the end of the period, the pipe B was swung from over the water tank.

Observations were taken for four different temperatures of the steam in the jacket, 210.9 degrees, 274 degrees, 307 degrees and 330 degrees Fahr., and for each jacket temperature the water velocity was varied from about 0.4 to 17 feet per second. In these experiments, no attempt was made to keep the temperature difference constant between the steam in the jacket and the mean temperature of the water.

Calculations.

Referring to Table I, column 14, the British thermal units per square foot per minute have been computed from the weight of water per minute, column 12; the rise in temperature of the water, column 4; and the area of the tube, computed from the mean diameter.

The mean temperature of the water, column 10, is the average of the items of columns 2 and 3. The curves of Fig. 2 show that within the temperature range of these experiments, this will be the true mean value.

The formula for the flow of heat through a given medium is similar to that for the flow of an electric current, and may be obtained as follows:

Let Q = B. t. u. flowing per square foot per second.

$(t—t_1)$ = the temperature drop in degrees Fahr. between two planes cutting the medium parallel to each other, and perpendicular to the direction of flow.

A = area in square feet of a section through which the heat is transmitted.

S = the time in seconds during which the flow takes place.

L = length in inches of the medium or the perpendicular distance between the two planes.

K = the conductivity of the medium, which is equal to the number of B. t. u. transmitted per second, per degree difference in temperature Fahr., per square foot of area per inch of length.

Then

$$Q = \frac{(t—t_1) \times A \times S \times K}{L} \quad \ldots\ldots(1)$$

The quantity K has been determined experimentally by a number of experimenters, and in c. g. s. units is about 0.2 for boiler iron. Reducing this to B. t. u., square feet, degrees Fahr., and inches, we obtain the value $0.1612 = K$ = the conductivity of boiler iron. The reciprocal of the conductivity is equal to the specific resistance $= \frac{1.0}{0.1612} = 6.2$.

In the present case, the thickness of the wall of the tube is 0.134 inches. The resistance of the metal of the tube per square foot, therefore, $= 6.2 \times 0.134 = 0.831$ and the "conductance" is $\frac{1.0}{0.831} = 1.204$. This value has been assumed to be constant for the temperatures here used.

It will be well to point out here the distinction between "conductivity" and "conductance," as used in the present article. Conductivity has been used to designate that quantity of heat which will flow through a medium of unit length and of unit area in a unit of time with a temperature drop of 1 degree, while "conductance" is independent of the length of the medium. The distinction is made necessary on account of the unknown thickness of the steam and water films.

The conductance of the water film, or the B. t. u. transmitted per square foot per second through this film, may

be determined in the following manner:

Let Q = B. t. u. transmitted per square foot per second.

A = area of the surface of the film in square feet.

S = time in seconds.

K'' = conductance of the water film.

K''_1 = conductivity of the water film.

L'' = thickness of water film, and can not readily be determined.

$(t''—t''_1)$ = drop in temperature between the inner or water surface of the tube and the water.

$$Q = \frac{K''_1\ (t''—t''_1) \times A \times S}{L''} \quad \ldots\ldots(2)$$

and

$$K''_1 = \frac{K''_1}{L''} = \frac{Q}{(t''—t''_1)\ A \times S} \quad \ldots\ldots(3)$$

In order to determine $(t''—t''_1)$, it will be necessary to determine the temperature of the inner or water surface of the tube. The temperature of the steam related to this side of the problem, that is, the transmission of heat from the steam to the tube, it will probably not be amiss to devote a small amount of space to this phase of the subject.

On the steam side of the tube, if a condition of equilibrium is assumed to maintain, there will be the condition of saturated steam imparting its heat to a film of water on the surface of the tube, which film may be assumed to be of a constant thickness, and which is constantly being replaced or renewed by the condensation of fresh steam. The agitation of the steam in contact with the water film will, therefore, if it does not agitate this film, have no effect upon the rate of heat transmission or the conductance, at least, in the case of the present experiments; for the maximum velocity of approach of the steam towards the tube, due to the condensation, is about 1/5 foot per second. This

L' = thickness of film in inches.

A = area of surface of film in square feet.

S = time in seconds.

Q = B. t. u. transmitted per square foot per second.

$(t'—t'_1)$ = temperature drop between steam in jacket and outer surface of tube, as obtained by thermocouples.

$$Q = \frac{K'_1\ (t'—t'_1)\ A \times S}{L'} \quad \ldots\ldots(4)$$

therefore

$$K' = \frac{K'_1}{L'} = \frac{Q}{(t'—t'_1) \times A \times S} \quad \ldots(5)$$

In the above formula A and S may be taken as unity; Q is obtained from Table I, column 14; the values here given are expressed in B. t. u. per minute and must be reduced to B. t. u. per second before being used in the formula. $(t'—t'_1)$ is taken from column 7 of the same table.

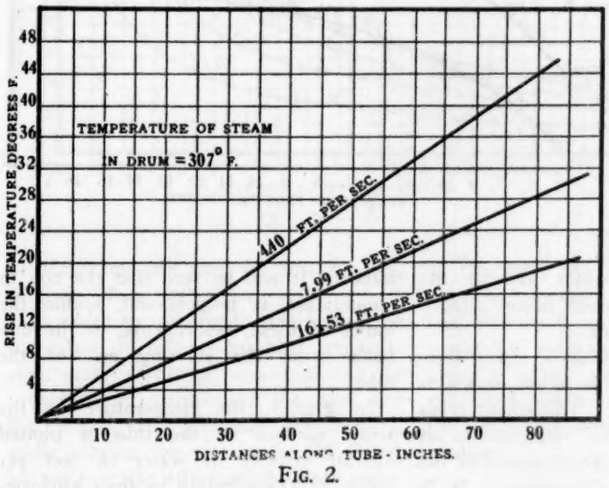

RISE IN TEMPERATURE DEGREES F.
TEMPERATURE OF STEAM
IN DRUM = 307° F.
4.40 FT. PER SEC.
7.99 FT. PER SEC.
16.53 FT. PER SEC.
DISTANCES ALONG TUBE - INCHES.

FIG. 2.

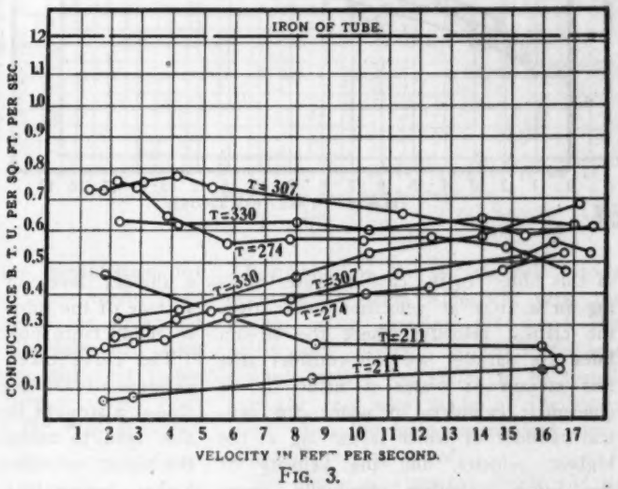


FIG. 3.

surface is given in Table I, column 6. From formula (1), having Q, which is obtained from Table I, column 14, and K, given, the temperature drop through the metal of the tube may be computed. This has been done and the results are given in column 8. By subtracting the temperature drop through the metal of the tube from the temperature of the steam surface of the tube, the temperature of the water surface is obtained. This is given in column 9, and the drop from the water surface to the mean temperature of the water is given in column 11. Having this drop, the conductance of the water film may be computed from the formula.

A consideration of the phenomena occurring on the steam side of the tube is foreign to the purpose of this paper. As, however, the application of the results of experiments along this line have already proved of the greatest practical value in the design of high vacuum apparatus, and as our data are so closely

would lead one to believe that the temperature on the surface of separation of the steam from the water film must be practically the temperature of the saturated steam. If such is the case, the agitation of the steam alone would not affect the conductance, as it would not change the temperature drop through the tube. The solution of the problem of more efficient heat transmission from steam to surface of tube, therefore, lies solely in the removal or agitation of the water film.

If it is then assumed that the temperature of the surface of water film in contact with the steam is at the temperature of the steam, and that the temperature of the surface of the water film in contact with the tube is at the temperature of the tube, the conductance of the water film on the steam side of the tube may be computed from the following:

Let K' = conductance of the film.

K'_1 = conductivity of the film.

The value of L' cannot be determined.

The conductances of the water films on the steam and water sides of the tube are given in columns 15 and 16, respectively, and these results are shown plotted against the velocity in feet per second of the water in the tube, Fig. 3. The temperatures placed on these curves are the temperatures in the steam jacket during each experiment. The data from which the points on the 211-degree curve were plotted were taken from the results of some later experiments, and have not been included in the table.

Effect of Velocity in Conductance.

It will be seen from this figure that the conductance of the film on the water side increases with the velocity of the flow of the water in the tube. This increased conductance at the higher velocities, which means a higher rate of agitation of the water, is due to the increased number of particles of the

water coming in contact with the walls of the tube. The word "conductance" used to express the flow of heat from tube to water is somewhat inappropriate in this place, for it seems to suggest that the film remained the same so far as its physical structure was concerned, and that its heat conductivity varied, while as a matter of fact, the increased conductance or the increased flow of heat from the tube to the water at the higher velocities is due to the destruction or rather to the continuous renewal of this film. In the case of water flowing in a tube at velocities lower than the critical velocity, where the stream lines are parallel, we can consider that this stream of water is made up of concentric cylinders of water, the central cylinder of which is moving at the highest velocity, and the velocity of the outer cylinders gradually drops off until the lowest velocity is found in that cylinder which is in direct contact with the walls of the tube. In this case, the heat flow from the walls of the tube takes place principally by conduction, and the effect of convection is very small. The case is analogous to that of heating water in a vessel from the top, such as has been used for the determination of the specific conductivity of water and other liquids. When the critical velocity of the water in the tube is reached, or when baffles are placed so as to disturb the parallelism of the stream lines, the concentric cylinders of water disappear and the stream lines mingle and flow from side to side in zigzag fashion; the film of water adjoining the tube walls is being continually renewed by these zigzag stream lines, and the flow of heat from tube to water is carried on largely by convection.

The conductance of the film on the steam side has been computed and the results are given in column 15 of the table. These conductances have also been plotted against the velocity of flow of the water in the tube and are shown in Fig. 3.

It will be noted that the conductance of the steam film increases as the velocity of the water in the tube decreases. This is doubtless due to the decrease in temperature difference between the steam and the water as the velocity of the latter is decreased. This results in less condensation on the tube, consequently a thinner layer or water film on the surface of the tube, which makes a higher conductance possible.

The curve taken with a steam temperature of 330 degrees in the jacket is almost a straight line. The other curves also tend to assume a straight line at the higher velocities, which means at the higher temperature differences. It is possible that the former curve would rise suddenly at the smaller velocities.

In Fig. 3 is also shown the straight dashed line, indicating the constant conductance of the metal of the tube, which is 1.204.

In column 17, of the table, are given the conductances through tube and film on the water side. These were computed by taking the reciprocal of the sum of the reciprocals of the conductances of the tube and of the film on the water side; the former of which is constant and equal to 1.204, while the latter is obtained from column 16 of the table. The conductances of tube and film are shown in Fig. 4, plotted against the velocity of flow of the water.

The curves of Fig. 5 show the relation between the velocity of the flow of the water in the tube and the total heat transmitted per minute per square foot of mean tube surface. Curves of Fig. 6 show the relation between the velocity of the water and the B. t. u. absorbed per pound. The curves of Fig. 2 were obtained by a set of separate experiments to investigate the rise in temperature of the water along the tube. The temperatures in the tube were taken by means of a thermocouple placed in the end of a long glass tube which was pushed through a perforated cork placed in the end of the water or boiler tube. Beyond the end of the glass tube and ahead of the thermocouple junction, a small baffle was placed so that the mean temperature of the water might be obtained. It will be seen that the rise in temperature is proportional, within the limits of these experiments, to the distance from the entering end of the tube.

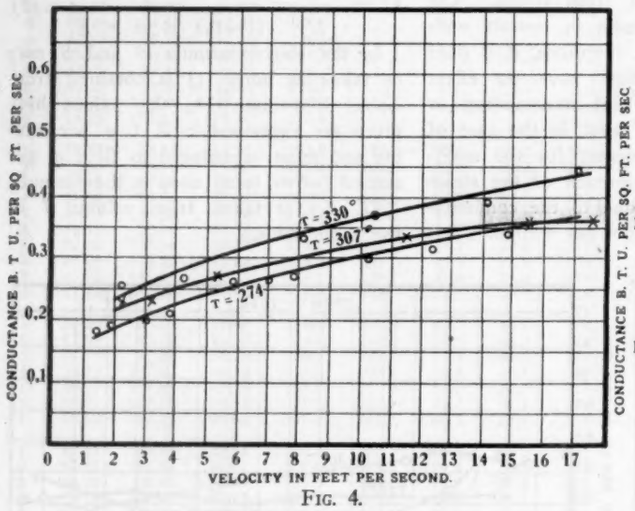
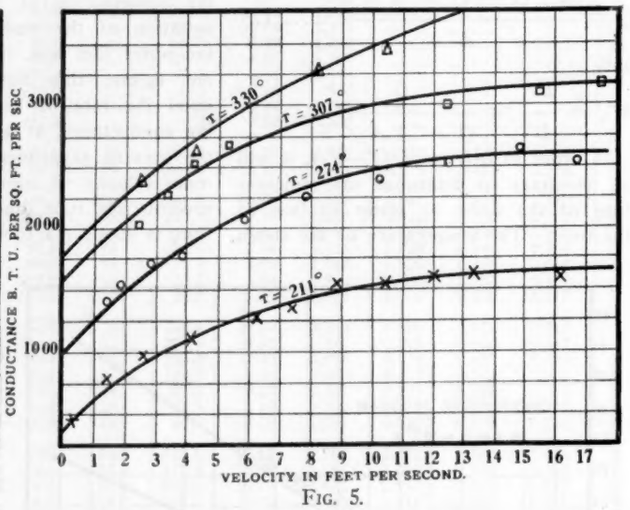


FIG. 4.


CONDUCTANCE B. T. U. PER SQ. FT. PER SEC
3000
2000
1000
T = 330°
T = 307°
T = 274°
T = 211°
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
VELOCITY IN FEET PER SECOND.
FIG. 5.

In Fig. 7, the temperature of the steam surface of the tube is plotted against velocity of water in feet per second. These curves by their uniformity seem to indicate the reliability of this method of experimentation.

Fig. 8 is a graphical representation of the temperature gradient through the film on the steam side, the tube and the film on the water side. The values corresponding to the maximum and the minimum velocities, as obtained in the experiment, have been plotted for the steam temperatures of 330 degrees and 274 degrees maintained in the jacket. Fig. 8 illustrates the increased temperature gradient due to the increase of the velocity of flow of the water in the tube. Fig. 8 is interesting in several respects. It illustrates very clearly the effect and importance of the film resistance in all heat transmission problems. It further shows that the film resistance of the metal in the case of tube and plates is much less than the resistance of the films. It may even be used to illustrate why it is possible to lubricate a gas engine with cylinder oil having a flash point of 700 degrees Fahr., while

the temperature of the gases in the cylinder may be close to 2,500 degrees Fahr.

Conclusions.

The limited nature of these experiments forbids the drawing of any general conclusions other than those already known. The principal interest lies in the development of a method which seems to offer a very desirable means of studying the effect of the variation of the velocity of the flow of gas, steam or water on the rate of flow of heat through tubes, plates, etc.

In order to investigate this subject of the effect of velocity on heat transmission more carefully, means should be provided for maintaining the tube and the water at a constant temperature, while varying the velocity of the latter. In studying the effect on the heat transmission of the velocity of gases over the tube, means should be provided for varying the velocity of the gas, while maintaining a constant temperature of the gas and the tube.

The effect of the formation of steam on the walls of the tube, as it approaches the condition in steam boiler practice, should come in for consideration. It is probable that the effect of rapid agitation of the water in a tube in which steam is forming, especially in large quantities, will be much greater on the heat transmission through the tube to the water, than would be the case in a tube in which no steam was forming, owing, of course, to the breaking up and washing off of the steam bubbles from the side of the tube. It might be well to point out here that it is the rate of agitation, and not necessarily the velocity of the water that produces the change in heat transmission. The velocity in feet per second has been used for the reason that it is the only definite quantity available to express this rate of agitation. It may be, to a certain extent, a measure of the rate of agitation, but it is not necessarily so. The rate of agitation may be defined as the number of times per second that each particle of water comes into contact with the tube or with the film on the tube if we consider that the film is indestructible, although it is more likely that the film is in a process of continuous renewal. In the case of the present experiments, it is probable that if elaborate baffles had been placed in the tube, the heat transmission for the same velocity of flow would have been increased. Also, if the stream of water on entering the tube had been given a rotary motion, the heat transmission would have been increased while the velocity through the tube remained constant.

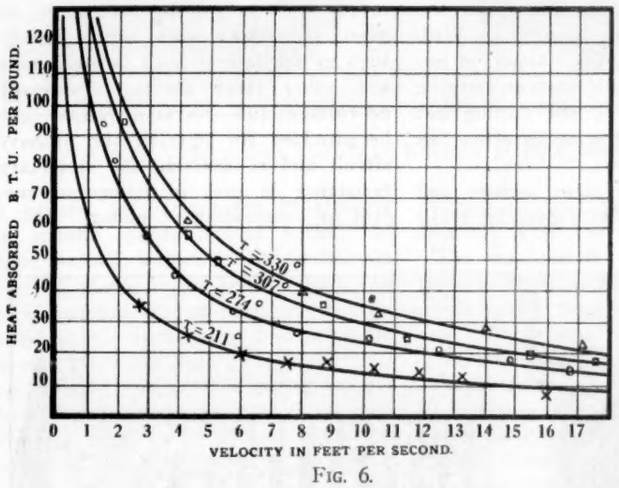


FIG. 6.

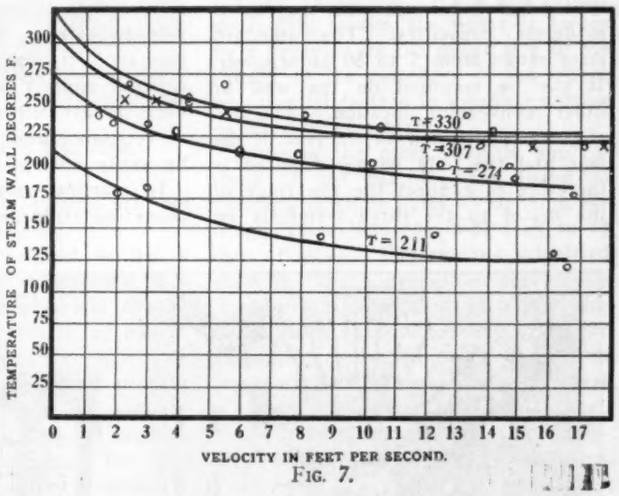


FIG. 7.

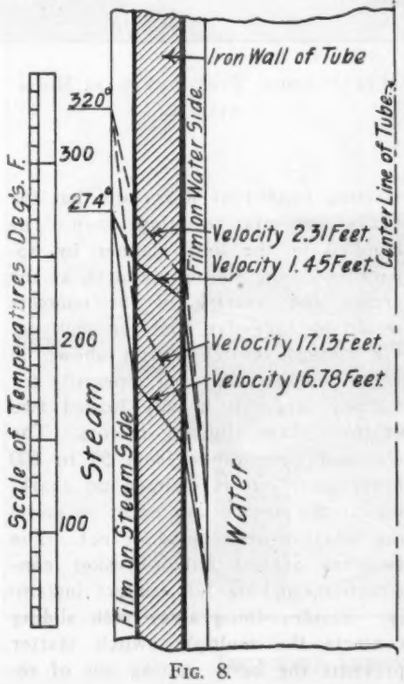


FIG. 8.

Test of a Wood Rim Pulley

An interesting test of a wood rim pulley was recently made at the Mishawaka, Ind., works of the Dodge Mfg. Co. The pulley tested was of standard Dodge design, 46½ inches diameter, 16-inch face, 4-inch bore, with a cast iron six-arm spider to which the wood rim was bolted.

In making the test a temporarily vacant room was fitted up with a rope driven line shaft, arranged to run at 200 revolutions per minute, belted to a countershaft, from which, in turn, the testing arbor carrying the wood rim pulley was driven. A barricade was erected around the pulley to be tested, and the test was made at the noon hour, when the main engine was available for varying speeds.

The engine was started slowly and its speed slowly increased to the maximum of 75 revolutions per minute, producing a speed at the testing arbor of slightly over 2,400 revolutions per minute. This, multiplied by 146, the pulley circumference in inches, showed that the pulley had run at a speed of 29,200 feet per minute.

A speed of 5,000 to 6,000 feet per minute is ordinarily accepted as the safe limit for the rim speed of ordinary factory pulleys. At a speed of nearly 30,000 feet per minute the pulley described above showed no strain and was apparently as good as ever after being tested. Unfortunately the apparatus available did not permit testing the pulley to destruction. The makers claim that in casting the iron spider without a rim it is possible to eliminate the shrinkage stresses to which all iron pulleys are commonly subject. Duplicates of this pulley are, it is said, being run in the shop of a manufacturer of electrical machinery at a rim speed of 9,000 feet per minute.

New Alternating Current Motor Starters

A number of distinct types of starters for use on alternating current systems and each covering several styles and sizes have been developed and put on the market by the Cutler-Hammer Manufacturing Co., Milwaukee, among them the crane controllers illustrated in THE IRON TRADE REVIEW, Sept. 29, 1910.

Three types of starters for polyphase motors are illustrated herewith. Fig. 1 shows the simple face plate type adapted for use with motors of moderate capacities. The standard sizes range from 5 to 50 horsepower. It can be mounted on the wall or other convenient location. The resistance is mounted on the rear of the face and the only wiring required is therefore to connect the slip rings of the motor to the three terminals on the face plate. The hard drawn copper contact segments can be replaced or interchanged without interfering with any interior connection.

The brushes consist of a pair of contacts at each end of the lever. The leading contact of each pair is made of carbon and the other of copper, which is claimed to give long wear, as the carbon takes the arc, while the copper, which has a low contact resistance, carries the current. A latch is provided for holding the lever in the running position but can be replaced by a no-voltage release. In case of current failure the primary circuit is automatically opened and the rotor resistance re-inserted. An overload attachment can also be provided to open the primary circuit and cut in the resistance in the secondary when the motor is overloaded.

For larger motors and in locations where dust, lint, etc., are present the drum type of starter is preferred. This starter, shown in Fig. 2, is made in sizes ranging from 10 to 200 horsepower. The drums are tightly fitted and the contacts and brushes can be readily renewed at slight expense. The cylinder on which the contacts are mounted is designed to remain perfectly true under all conditions. The terminals are arranged on the side and are readily accessible. With this type of controller danger of accidental contact with current-carrying parts is avoided and the cutting out of resistance and the acceleration can be easily controlled.

In starting very large motors and those operating under especially heavy starting conditions it is said that the heavy currents resulting cannot be handled in the best manner by apparatus having sliding contacts, as the arcing and wearing of the contacts would be excessive, and for such use the multiple switch starter shown in Fig. 3 has been devised especially for starting large or heavily loaded two or three-phase slip-ring motors. The standard sizes range from 50 to 600 horsepower. It is claimed no sparking at the switch can occur in starting whether under load or not. The switches are of circuit-breaker construction, making full contact instantly. Besides doing away with sliding contacts the multiple switch starter prevents the hasty cutting out of resistance, as each switch must be closed separately, beginning at the left, and the time required insures a smooth acceleration of the motor and prevents injury due to large current inrush. The contacts of the switches are so connected that the resistance is cut out of the phases of the secondary at the same time; the currents in the legs are therefore approximately equal and an electrical balance is maintained. The motor is started under the best conditions, each phase producing its share of the total torque. This type is claimed to be most serviceable with large motors, such as are largely used in steel mills and other large plants. Automatic no-voltage and overload release can be provided for opening the primary circuit and re-inserting the secondary resistance in case of failure of current or overloading of motor.

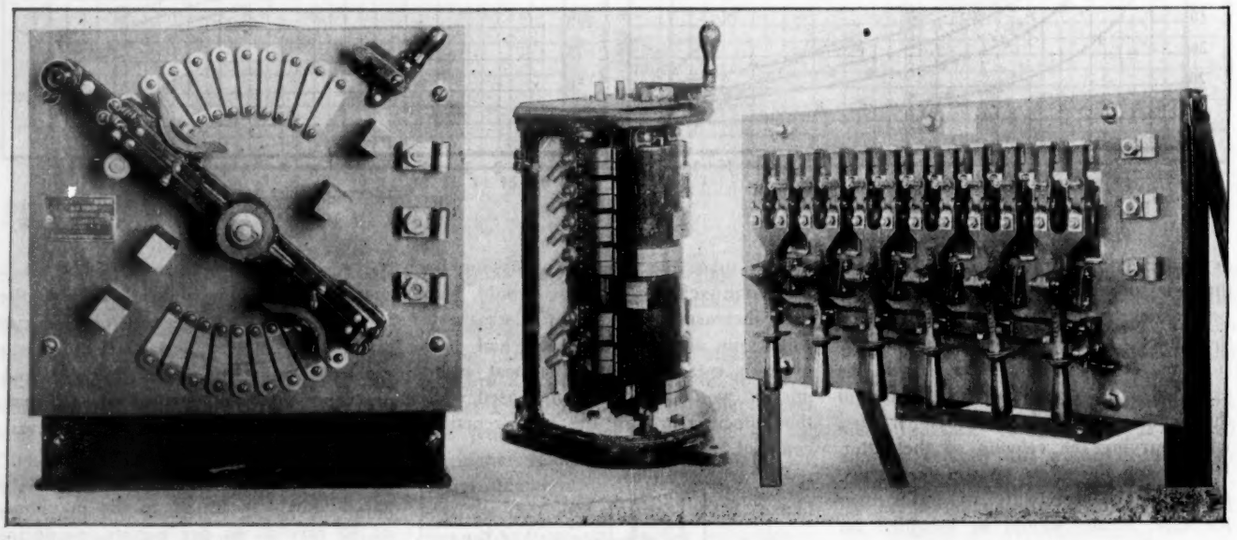


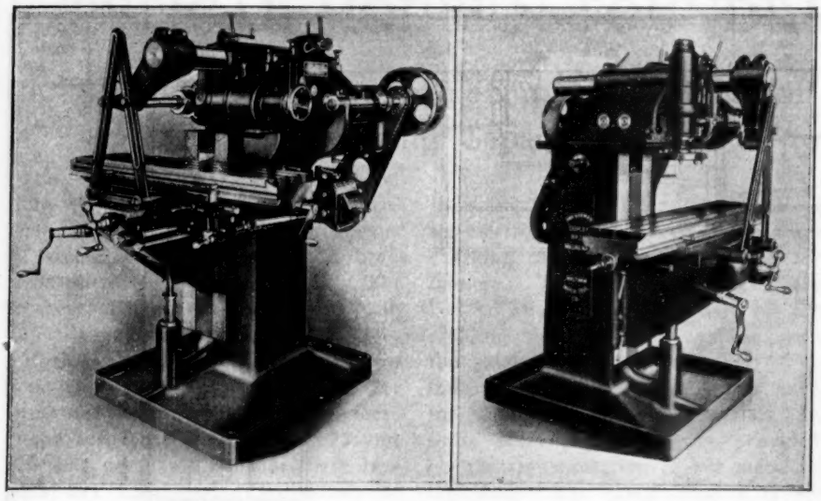
FIG. 1—FACE PLATE TYPE MOTOR STARTER FOR POLYPHASE SLIP RING MOTORS.

FIG. 2—DRUM TYPE POLYPHASE MOTOR STARTER.

FIG. 3—MULTIPLE SWITCH TYPE STARTER FOR TWO AND THREE-PHASE SLIP RING MOTORS.

Constant Speed Duplex Milling Machine

Herewith are presented two views of the Van Norman No. 2 duplex milling machine being placed on the market by the Waltham Watch Tool Co., Springfield, Mass., and which possesses the same special features that distinguish these machines from other types of milling machines, that is to say, a movable counter-head mounted on a ram or frame adjustable in and out over the table of the machine to adapt to cutter for use either in a vertical or horizontal position or for cutting at any angle. The features of the machine shown which are not found on former sizes are, first, a single pulley or constant speed drive with



WALTHAM WATCH TOOL CO.'S VAN NORMAN DUPLEX MILLING MACHINE.

a general mechanism for 12 changes of spindle speeds located within the ram; second, general feed mechanism for 16 changes of feeds; third, an improved box type of knee; and fourth, solid steel overhanging arm with tie braces to secure rigidity under vertical or horizontal cuts. The cutter spindle has conical bearings and is made with No. 13 Brown & Sharpe taper to adapt it for holding the large collet holder or reducing collets as used in this machine. After the cutter spindle has been located at the most advantageous position with reference to the work the ram is securely clamped to the column. Some of the leading dimensions of the machine are:

Longitudinal table feed, 30 inches, transverse table feed, 12 inches, vertical table feed, 19 inches. Movement of ram or frame, 13 inches. Weight of machine, about 4,000 pounds.

Springfield Vertical Grinder

The Springfield - Brandes vertical grinding planer in its redesigned form is shown herewith. Numerous improvements in general construction have been effected and the machine has also been made very much heavier than anything heretofore employed for this class of grinding. The weight of the machine shown, which has a capacity for grinding 12 inches wide, 12 inches in height, 4 feet long, is 8,000 pounds. The machine can be made of greater length capacity, if desired.

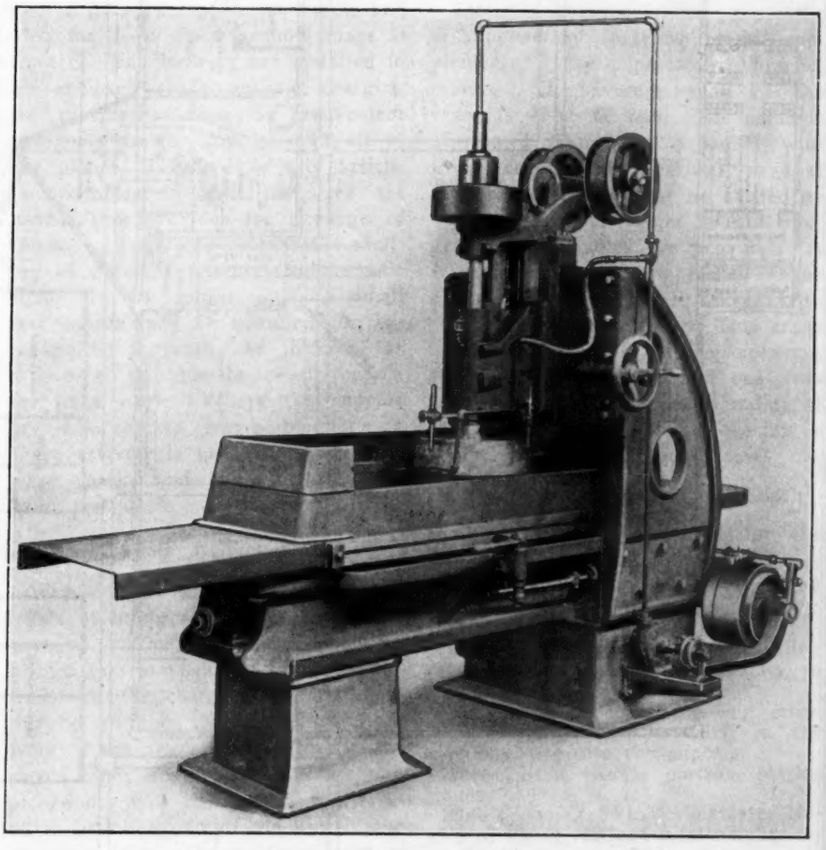
Ball bearings are employed for the vertical spindle, one on the under side to take the thrust and another above with spring take-up to prevent backlash when the wheel leaves the work. There is in consequence a constant thrust on the lower bearing. The driving pulley is carried on an independent bearing so that belt strains are not transmitted to the spindle.

The machine is designed to use a 16-inch wheel, which is mounted in a chuck which permits of ready change and which is also protected by guards in case of damage to the wheel.

The machine is claimed to possess all features of stiffness and rigidity which are characteristic of the modern planer. As may be seen from the halftone, the table guards are made in sections on the front side to facilitate removal. The table drive is through a worm and worm gear on the rear of the machine to a large screw which runs in a long nut under the table and the table action is therefore smooth and regular. A hand feed for feeding the work to the wheel and which is equipped with a micrometer dial, is provided and power feed can be added if desired.

A pump is provided to supply lubricant to the wheel which can be applied either through the spindle or from the outside, as shown. When the former method is in use, the water is forced by a deflector on the under side of the spindle to the periphery of the wheel, an essential feature in grinding narrow or interrupted surfaces.

Some of the most valuable applications of the machine are found in finishing machine parts direct from the rough, removing from 1-32 inch to ⅛ inch of stock. The records submitted showing time consumption are merely fractional as compared with tool finishing, even though in many cases the amount of stock removed was much greater than necessary where the part is intended to be finished by the wheel. The machine is built by the Springfield Manufacturing Co., Bridgeport, Conn.



SPRINGFIELD IMPROVED VERTICAL GRINDER.

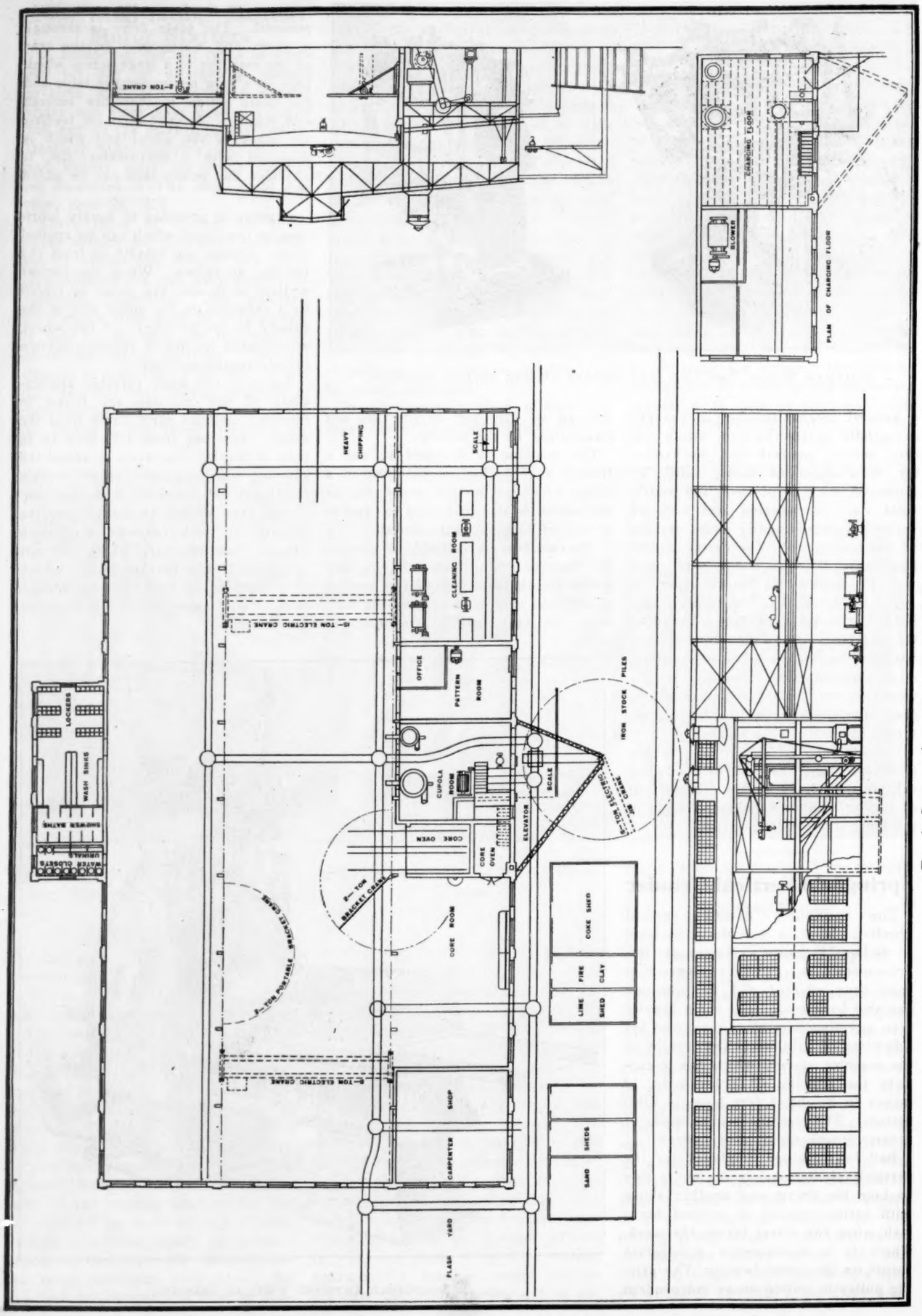


FIG. 1—LAYOUT FOR A FOUNDRY OF 30 TONS DAILY CAPACITY.

TYPICAL MODERN FOUNDRY LAYOUTS---II

General Arrangement and Equipment of Gray Iron Foundries of Varying Capacities, From 30 to 120 Tons Daily

In the first article* of this series four small gray iron foundries, one of which was equipped with a brass department, were described. The smallest of these was of 5 tons daily capacity and the largest only 20 tons. In this installment the layouts of four more gray iron foundries are presented. The capacity of these shops are respectively 30, 60, 75 and 120 tons per day. Each of these layouts has considerable individual interest, although the underlying principles in the design of gray iron plants are the same, whatever the size of the shop. For the layouts illustrated herewith we are indebted to the Whiting Foundry Equipment Co., Harvey, Ill. None of the plants illustrated in this article are provided with brass departments. The designs are such, however, that it would be an easy matter to fit out a corner in the main bay of any of these shops with brass furnaces and brass molding apparatus, thus adding a small brass department to the equipment of the plant.

Building Construction.

The buildings illustrated herewith have structural steel frames, the center bay columns being reinforced to carry the traveling crane. The cross-section of each building shows a gabled main bay fitted with a monitor roof, with an auxiliary bay covered by a leanto roof on either side. The steel frame is covered by curtain walls of brick or concrete. Abundant window area is provided. The monitor extends the full length of the main bay and provides both light and ventilation. Heating systems insure a proper temperature in winter and serve for ventilation in summer. Each plant is fitted with toilet accessories including lockers, wash bowls and shower baths. Space for these facilities is provided either in the main foundry building or in an adjacent, separate structure.

Handling Raw Material.

There are certain other general features which are similar in all four plants. In the smaller plants the stock yard is traversed by an industrial railway and in the larger ones it is also spanned by a traveling crane which is used to handle pig iron and scrap, either by means of an electric magnet or slings, to load charging cars and to handle coke for storage. The industrial tracks are laid so as to reach all points on the molding floor and to connect with the stock piles, flask yard, etc. The industrial railway is principally used for handling flasks and materials. In some cases, ladle cars are provided for the transportation of hot metal in the shop. The scrap breaker is either bracketed to the building or is of tripod design, operated by a pneumatic air hoist.

Charging Floor.

The charging floor is built of structural steel of sufficient strength to support loaded cars, coke and pig iron. A system of turntables, or a transfer table, is generally located on the charging floor in connection with storage tracks. The elevator is electrically operated or a pneumatic type. This floor is frequently extended and partitioned off, the space being utilized for storage of foundry supplies and tools and also for coke when ground space is limited. The blowers are installed in an enclosed space on the charging or mezzanine floor in convenient proximity to the cupolas. In all of the plants illustrated in this article, two cupolas of different sizes are used. This provides for a range of tonnage output, and permits the melting of different mixtures at the same time. In the larger shops a small test cupola may be installed for experimental purposes and to serve as a general portable or repair cupola for light work. Where the cupolas are adjacent to frame buildings a spark arrester is used to turn downward sparks and cinders that come from the stack.

Cupola Equipment.

With cupolas 48 inches in diameter inside of lining and larger, pneumatic charging machines prove economical. Loaded cars are held in storage on the tracks on the charging floor and are run on to the charging machine in front of the cupolas as needed. In the cupola room, a spur geared cinder mill of the dry type is installed, which receives practically all of the iron in the slag and drop. The reclaimed coke is used in the core ovens. In the 40 to 75-ton layouts the core oven fire pits are adjacent to the cupola room. The cupolas are enclosed and the cupola room is provided with industrial railway tracks so that ladle cars may be run into this room, where they are lined and dried, relieving the foundry proper of smoke. Bottom door hoists are advisable for cupolas more than 45 inches in diameter.

Core Room Equipment.

The core room is provided with standard drying or core ovens of sizes commensurate with the capacity of the plant. Where there is limited head room, a roller curtain type of core oven door is used. From two to four ovens are installed, depending on the size of the plant. The core room may also be equipped with a small, portable oven for drying small cores in a hurry. One or more standard coremaker's benches, 3 x 12 feet, are also provided in this room.

Crane Installation.

Internal transportation, generally, is supplied by traveling cranes supplemented by portable bracket cranes. The average span of the crane is 40 to 60 feet. The columns of the building are provided with the necessary pin bearings so that the bracket cranes can be shifted as desired. In the larger plants spur geared crane ladles are provided. A feature of the 30-ton plant is the electric jib crane which is used to cover the iron stock piles. This crane is anchored to the building columns, the pivot being set 23 feet out from the wall. The crane has a radius of 21 feet, 6 inches, thus covering a ground area of 363 square feet.

Equipment of a 30-Ton Shop.

The necessary equipment for the 30-ton shop is in detail as follows:

One 3-motor electric traveling crane, 45-foot span, 15-ton capacity, in the main bay.

One 3-motor, electric traveling crane, 45-foot span, 5-ton capacity, in the main bay.

One 2-motor electric traveling crane, 30-foot span, 2-ton capacity, in the side bay, opposite the cupolas.

Three 1-ton electric portable bracket cranes.

One cupola, 54-inch diameter inside of lining, 45-foot total height, capacity 12 tons per hour.

One cupola, 32-inch diameter in-

*See THE IRON TRADE REVIEW, Nov. 24.

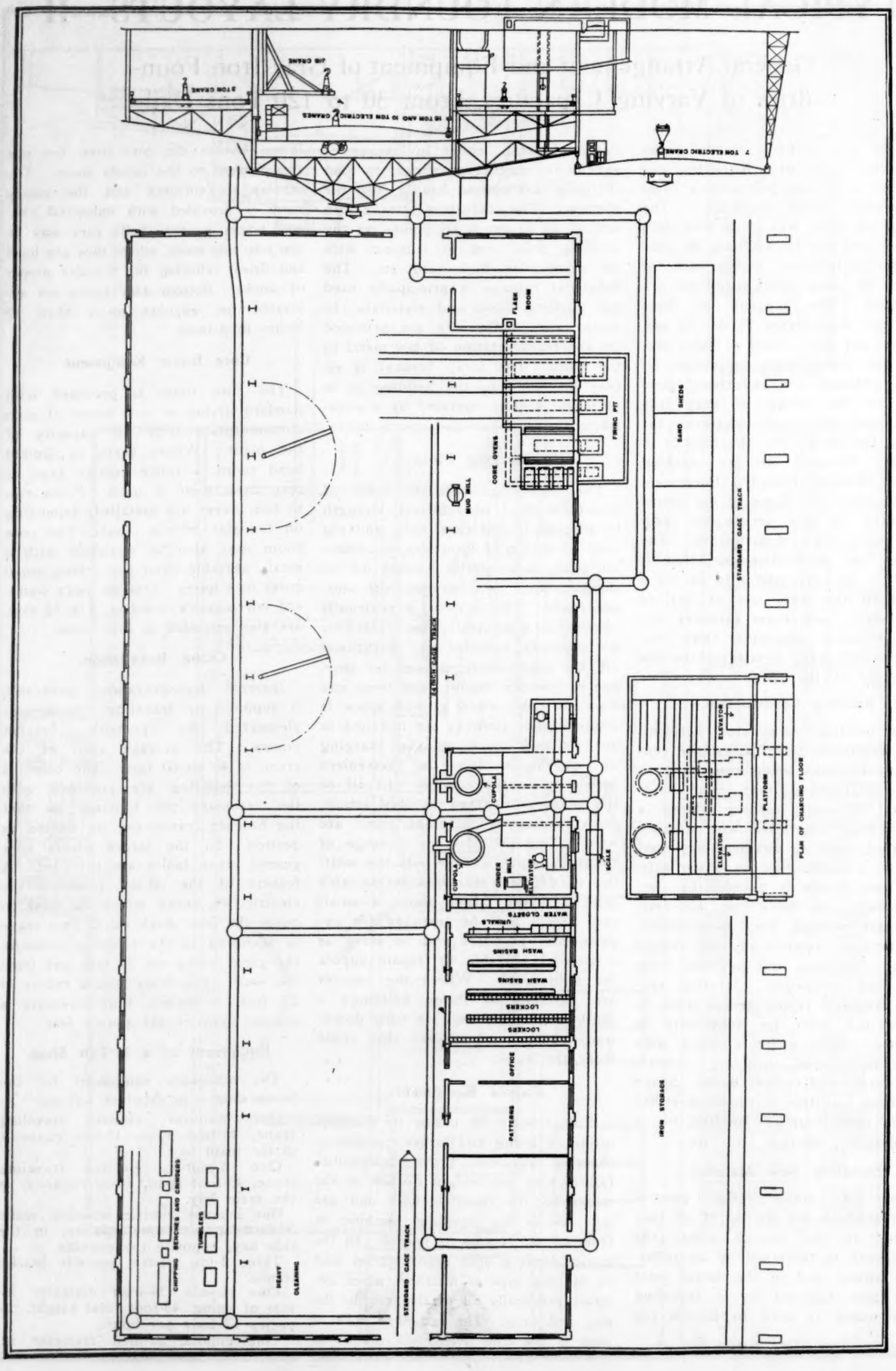


FIG. 2—LAYOUT FOR A FOUNDRY OF 60 TONS DAILY CAPACITY

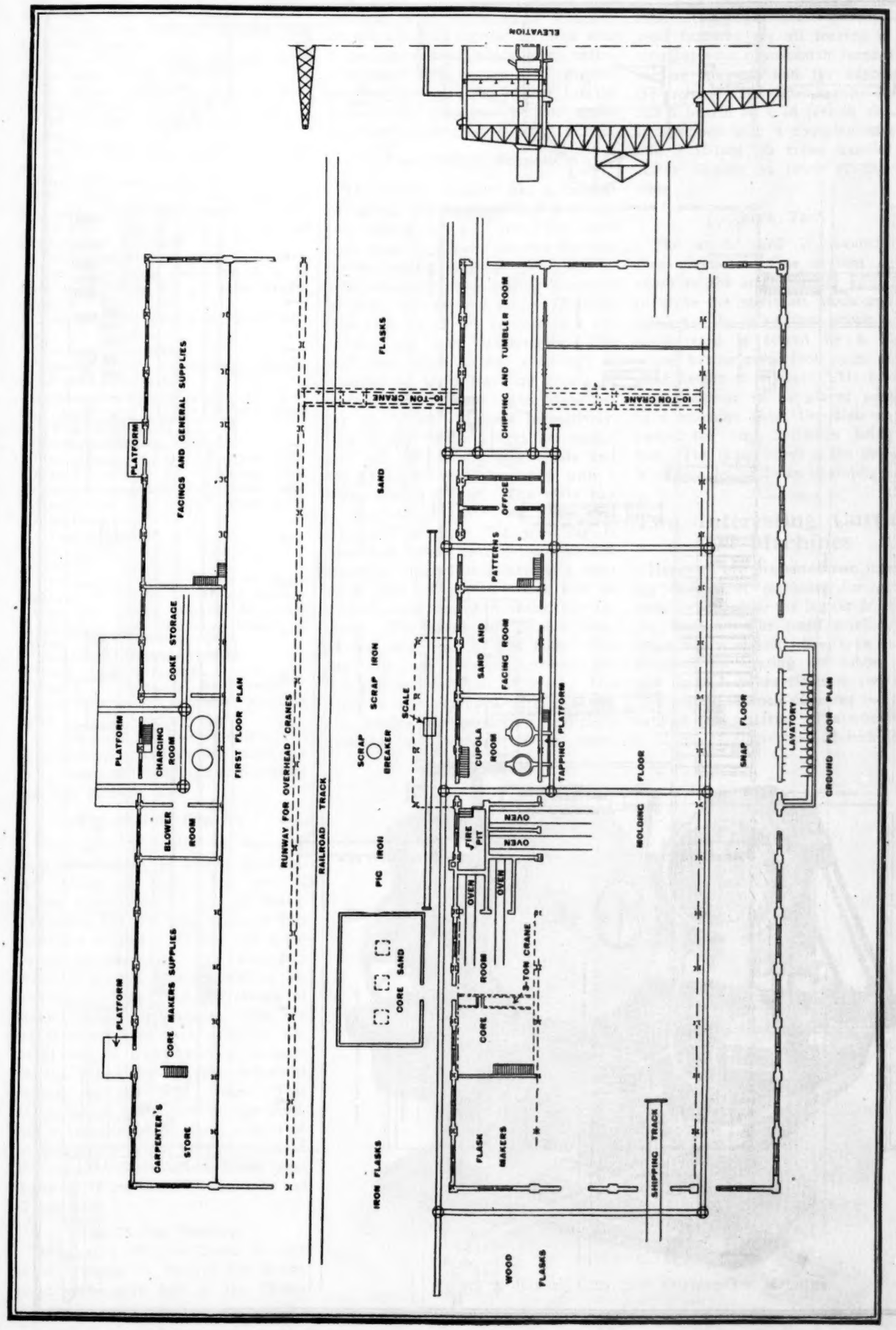


FIG. 3—LAYOUT FOR A FOUNDRY OF 75 TONS DAILY CAPACITY.

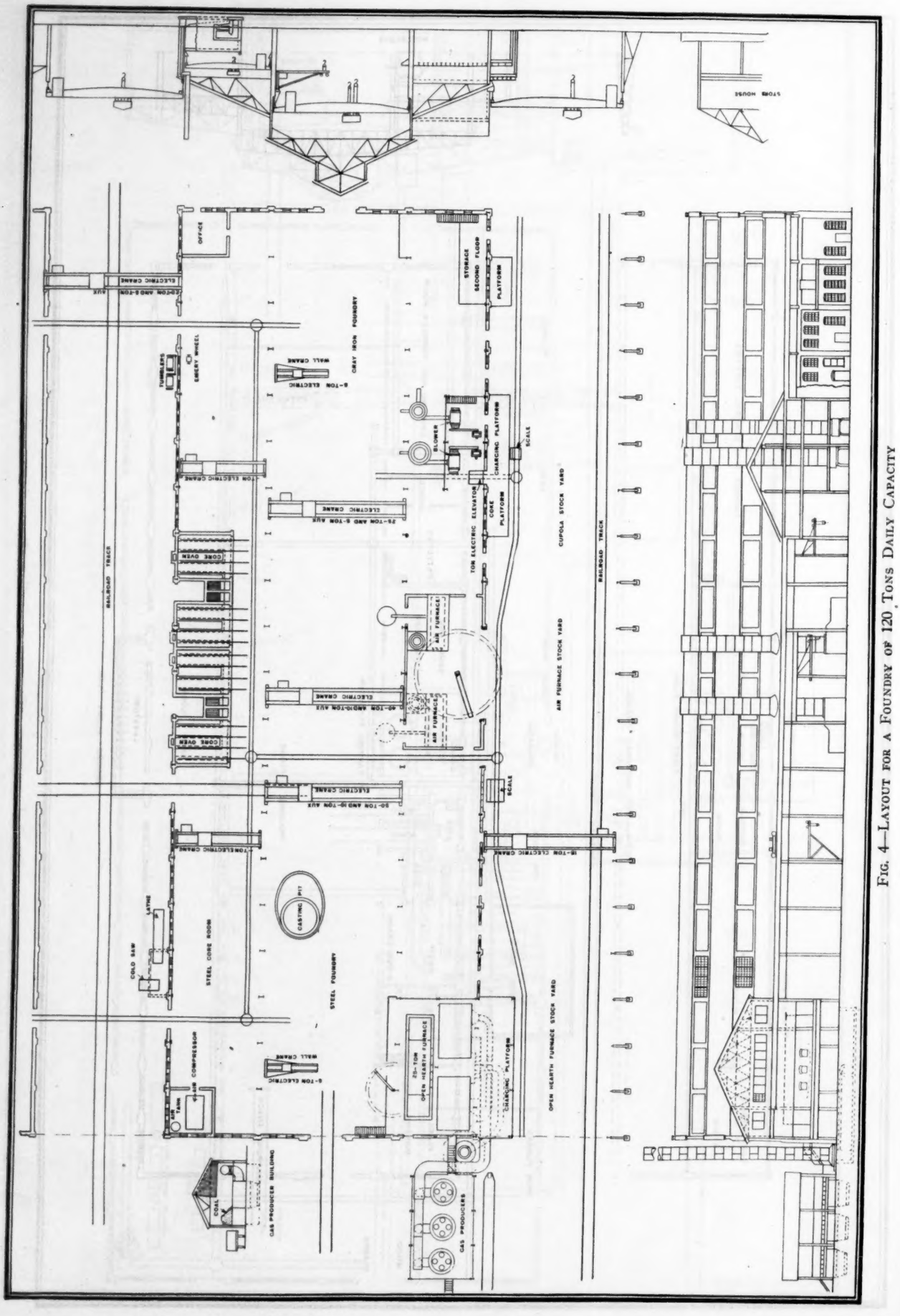


FIG. 4—LAYOUT FOR A FOUNDRY OF 120 TONS DAILY CAPACITY

side of lining, 45-foot total height, capacity 5 tons per hour.

Two positive pressure blowers, one for each cupola.

Two sets of cupola bottom door props with hoists.

One 3-ton pneumatic charging floor elevator, 18-foot lift, 5 x 7-foot cage.

One 3½-ton charging scale with 4 beams.

One 1,500-pound portable platform scale.

One pneumatic scrap breaker.

One core oven, 18 feet long, 14 feet wide, and 9 feet high.

One core oven, 14 feet long, 8 feet wide, and 9 feet high.

One portable core oven.

One 5-ton core oven car, 6 x 12 feet, with racks to go into largest oven.

Two portable pneumatic sand sifters.

One core machine.

Two standard coremaker's benches, 3 x 12 feet each.

Twelve 2-ton yard trucks, 3½ x 5-foot platforms for the 21-inch gage industrial railway.

Fourteen 48-inch turntables.

One 10-ton spur geared crane ladle.

One 5-ton spur geared crane ladle.

One 2-ton spur geared crane ladle.

One 1-ton spur geared crane ladle.

One truck for 1-ton ladle.

One 1,500-pound ladle car.

Ten 250-pound bull ladles.

Ten 50-pound ladles.

One cinder mill, 36 inches in diameter and 48 inches length of barrel.

One spur geared tumbler, 36 inches in diameter and 60 inches length of barrel.

Two motor-driven grinders.

Three chipper's benches.

One 6-ton industrial track scale.

One 1,500-pound portable platform scale.

In this plant the locker rooms, toilet arrangement and shower baths are in a separate building adjacent to the side molding bay.

The 60-Ton Foundry.

The 60-ton foundry is equipped with one cupola, 54 inches in diameter inside of lining, and one 72 inches in diameter inside of lining. The main bay traveling crane in this plant has a span of 53 feet and a capacity of 15 tons. The side bay crane is 3 tons capacity with a 32-foot span. Two 1-ton jib cranes of 20-foot radius are supplied. The fire pit for the three core ovens is situated out of doors, fuel is brought to the pit, either by the industrial railway or the yard crane. This crane, which spans the storage yard, has a capacity of 7½ tons, a span of 53 feet and a height above ground of 37 feet. The layout of the 60-ton plant shows a molding floor, 300 feet long and 85 feet wide.

The 75-Ton Foundry.

The design of the 75-ton foundry is very similar to that of the 60-ton plant. The side bay in the 75-ton plant, however, is narrow and is used for snap flask work. The side bay occupied by the cupolas is fitted with a mezzanine floor which gives extensive space for facings and general supplies, and also for lumber for the flaskmaker's department. The molding floor in this plant is 340 x 89 feet.

The 120-Ton Foundry.

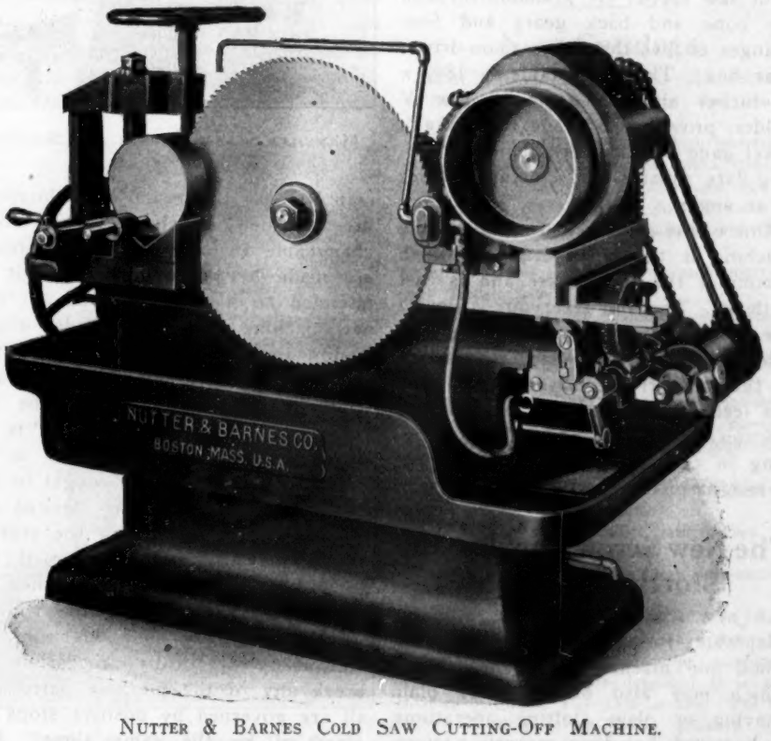
The 120-ton foundry has a number of special features. It is fitted with two cupolas for gray iron, but would have three if it were designed for producing gray iron castings only. The inside diameter of the smaller cupola is 45 inches and the two larger, 72 inches. The capacity of the cupolas is 8 and 18 tons per hour, respectively. The main bay, which is 400 x 60 feet, is spanned by three traveling cranes of 60-foot span. The crane capacities are 50, 40 and 25 tons respectively. The 50 and 40-ton cranes are equipped with 10-ton auxiliary hoists and the 25-ton crane is furnished with a 5-ton auxiliary hoist. The main bay is also equipped with two 5-ton, electric wall cranes. The side bay is furnished with two 5-ton, electric traveling cranes, each having a span of 37 feet. The core ovens, four in number, are located opposite the cupolas. The ovens are 25 feet long, 15 feet wide and 10 feet high. The fire pits are located between the first pair and last pair of ovens. This plant is also equipped with a 18-ton air furnace for producing malleable castings and with a 25-ton open-hearth furnace for making steel castings. The cupolas, air furnaces and steel furnaces are all located in the side bay, the open-hearth furnace being at one end and the cupolas at the other. The open-hearth furnace has a hearth 10 x 24 feet in size. It is equipped with a charging machine and a 12-foot jib crane handles the ladles directly in front of the furnace.

Stock Yard.

The stock yard is divided into three sections. One section is devoted to the steel foundry stock, another to the malleable stock and the third to the gray iron stock. The stock yard is served by a 15-ton crane having a 58-foot span and a clear height of 38 feet. This foundry was designed to be placed adjacent to a machine shop, the distance between the two buildings being 60 feet. The space between the buildings is served by a 25-ton traveling crane.

Two Interesting Cutting-Off Machines

Herewith are presented two interesting designs of machines for cutting metal produced by the Nutter & Barnes Co., Boston. The small machine belongs to the elastic wheel type and is designed for cutting off tubing and pipe up to 3 inches diameter and solid stock up to ¾ inch diameter in either hard or soft material. The wheel used is 12 inches diameter, 3-32 inch thick,



NUTTER & BARNES COLD SAW CUTTING-OFF MACHINE.

running at 3,000 revolutions per minute. Stock is secured in the V holders as shown and the wheel may be brought forward to the cut either by hand by means of the handles shown or by the foot treadle, and is returned

ELASTIC WHEEL CUTTING-OFF MACHINE.

to the rest position automatically when released by means of the spring shown under the foot treadle.

The larger machine belongs to the cold saw type and is capable of dealing with stock up to 8 inch round, using a 22-inch diameter saw 3-16 inch thick. The machine is powerfully back-geared in the ratio of 43 to 1. It is driven by spur gears throughout. Four saw speeds are available through the cone and back gears and four changes of feed through a chain-driven gear box. The work table is 18½ x 13 inches and, by removing the V holder, provision is made for using a bevel gage on the work table for cutting flats, squares and structural shapes at an angle.

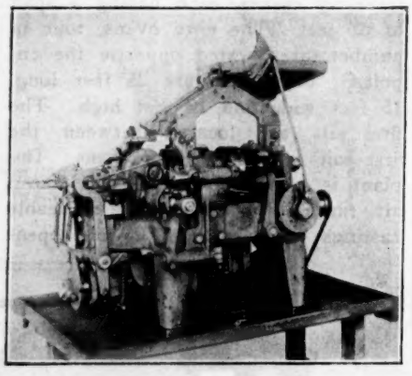
One of the prominent features of the machine is the large drip-pan which surrounds the entire base and is cast with it. The oil reservoir is inside the base from which an oil pump supplies lubricant to the saw. A feature of the feed drive consists in mounting the feed driving sprocket between two friction discs which admits of its slipping in case of excessive feed or of oversight on the part of the operator.

The New Screw Shaving and Slotting Machine

A new shaver and slotter which is adaptable for shaving and slotting wood and machine screw heads, and which may also be used for plain shaving or plain slotting operations, as required, has been recently perfected by the E. J. Manville Machine Co., Waterbury, Conn., and is illustrated herewith.

The principal points of advantage in this machine are extreme accuracy as to the diameter of the head and the central location of the slots; the head in every case is also perfectly round and true with the body. In machines of the older type it is said that there has always been considerable difficulty in keeping the quality of the work up to standard in these respects. In this machine all screws, up to 4 inches in length, are pushed into the spindle clear to the head, no back rest being used to throw the heads out if the blanks are imperfect. The blank is held in a split chuck, similar to that of automatic screw machines and the saws can be instantly adjusted to bring the slots central with the head of the screw. The fact that the screw head is turned by being held entirely in the spindle insures every head being absolutely round and of a very smooth finish and a great increase in production is secured.

These machines handle all sizes of screws from ¼-inch No. 0 up to 4-



MANVILLE SCREW SHAVER AND SLOTTER.

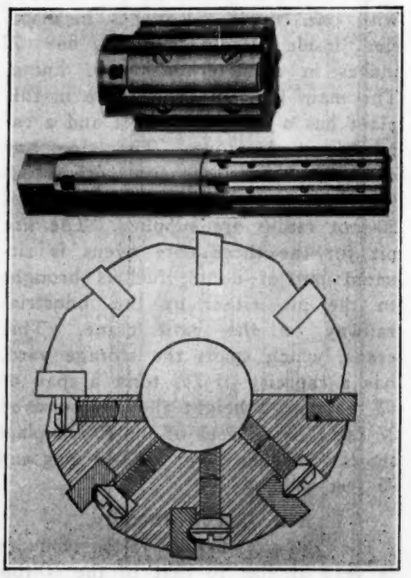
inch No. 20. Large and small hoppers are provided, which are also interchangeable on the wood screw threaders made by the company and it is intended to also apply them to the new machine screw die-threader which is now under construction. All parts of the machine are in full view, and nearly every adjustment may be accomplished while the machine is in operation. The shaving tool is so mounted that it can be brought to the head of the screw at any desired angle, so that heads having the correct angles may be secured even if the tool itself is not correctly formed.

Nearly all movements are yielding, some of them in both directions, so that it is practically impossible to break any of the machine parts, and all are governed by positive stops instead of by the cams alone. Any operator familiar with the old type of shaver can readily operate these, as the action of the tools is, of course, practically the same, the only radical difference being that both spindles are rigidly mounted in the frame, and each spindle has its own set of tools, which gives accuracy to the product and increases the production by its being unnecessary to flop the spindles over from side to side.

The inaccuracy of screw heads has been a source of more or less complaint with all manufacturers, and the knowledge that a machine has been devised which it is claimed will remedy most of the difficulties which have caused the complaints in past years, will doubtless be welcome.

A New Adjustable Reamer

The Standard Tool Co., Cleveland, has recently added to their line a new adjustable reamer which they call the "Stana R." The new reamer has been developed and placed on the market in response to a demand for an adjustable reamer, simple in construction, readily adjusted to compensate for wear, and yet solid enough to stand the most severe service, which essentials are claimed to be met in the "Stana R" reamer. The body is made of high grade machinery steel and the blades are unevenly spaced to prevent chattering and insure a smooth hole. Each blade is held rigidly in place by means of heavy screws as shown, provided with specially shaped heads which are countersunk into the body of the reamer. The screw heads engage with V-shaped grooves milled into the face of each blade. This con-



THE STANA-R ADJUSTABLE REAMER.

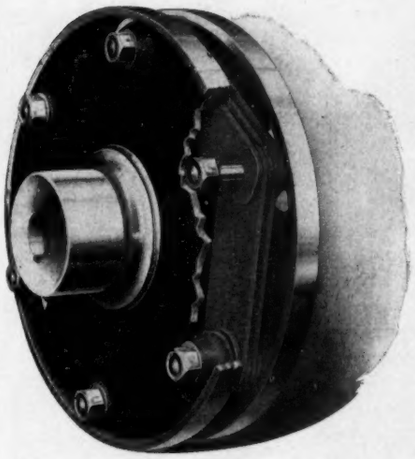
struction, it is claimed, not only seats and holds the blades rigidly against the bottom and back of the body grooves, thus eliminating any tendency to spring, but also prevents any endwise motion. The blades also extend a sufficient distance beyond the body to permit of their being ground with end clearance for chucking or machine reaming.

After the blades are worn or when it is desired to increase the diameter, they can be taken out by removing the screws, and the diameter increased by placing a liner of some suitable material of the desired thickness (preferably tin foil) in the slots under the blades, after which they are reground ready for use. It will be seen that the blades can be adjusted many times and when completely used up the substitution of a new set gives, to all intents and purposes, a new reamer. The reamers are made in both hand and shell types and with either carbon or high speed steel blades.

A Flexible Link Coupling

Herewith is shown a flexible coupling designed by the Bruce-Macbeth Engine Co., Cleveland, for use in direct connected gas engine work, but which is equally applicable to other forms of service and which the maker announces has been thoroughly tried out in direct connecting of motors to fans, pumps and blowers, and in fact all classes of machinery requiring direct drive. Its use permits the mounting of machinery on separate foundations, thus doing away with the necessity for the customary sub-bases and consequently effecting a saving in cost of installation. Angular variation and end play are, it is claimed, eliminated without backlash or wear, and the unequal wear of bearings due to imperfect alignment, together with accompanying friction losses and shaft breakages, are prevented. One of the features of its construction is that it requires no lubrication or other attention than the usual occasional examination. The links are made of a special grade of leather so that a considerable amount of axle and radial flexibility is easily attainable. The coupling is made in a number of sizes of which the largest is capable of transmitting 1,500 horsepower at a maximum speed of 750 revolutions per minute.

The Des Moines Electric Co., Des Moines, Ia., is planning to spend $70,000 for improvements to its plant next spring. W. C. Sharp is general superintendent.



BRUCE-MACBETH FLEXIBLE COUPLING.

A Convenient Radial Drilling Machine

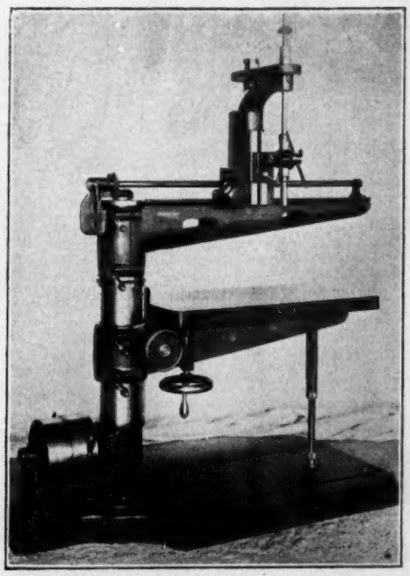
The illustration shows an interesting design of radial drilling machine designed for drilling relatively small holes over a considerable range, and which has just been put on the market by the Taylor & Fenn Co., Hartford, Conn. Many uses for a machine of this type will readily suggest themselves to those familiar with shop operations. The machine is designed to drill holes up to ¾-inch in diameter, though by applying drilling heads of different types may be made to cover nearly all drilling requirements within its range. Automatic power feeds, lever feed, high speed sensitive or tapping heads may be used on this machine either singly or in combinations. The drilling head is similar in design to the heads used on other standard machines by the same maker and may be moved along the arm by means of rack and pinion and is clamped to the arm by a binder screw at the rear. The spindle is positively driven by gears and silent chain and is fitted for No. 2 Morse taper. The drill box on the back of the drilling head gives three spindle speeds. The arm is of tubular section and is given a long bearing on the column and section upon a ball bearing thrust. The table, as may be seen, is of substantial design and is provided with an outboard support for use when required. Provision is made for clamping both arm and table to the column by binder screws conveniently located. The machine may be driven direct from the line through the tight and loose pulleys shown without the intervention of a counter-shaft. Some of the leading dimensions are as follows:

From center of column to end of arm, 42½ inches.

Center of spindle to center of column, maximum, 36 inches, minimum, 11 inches.

End of spindle to base, maximum, 48 inches, minimum, 36 inches. End of spindle to table, maximum, 26 inches, minimum, 3¼ inches, traverse of spindle, 11 inches; length of feed, 4¼ inches.

The table and base are respectively 20 x 35 inches and 24 x 36 inches. The 10-inch driving pulley runs at 310 revolutions per minute and carries a 3-inch belt. The extreme height of the machine, with spindle at highest point, is 79 inches and the approximate weight is 1,100 pounds.



TAYLOR & FENN RADIAL DRILL.

New Catalogs.

ELECTRICAL MATERIAL.—The following bulletins have been issued by the General Electric Co.:

No. 4774 treats of centrifugal turbine-driven air compressors in single and multi stages.

No. 4771 deals with hand-operated starting compensators for alternating current motors.

No. 4769 treats of train lighting with Mazda and Tantalum lamps.

No. 4763 describes direct current generator and feeder panels.

No. 4766 describes Tantalum incandescent lamps for general illumination.

No. 4775 describes type K S single-phase induction motors.

No. 4776 describes engine type continuous current generators for lighting and power.

No. 4773 describes the Thomson high-torque induction test meter.

No. 4772 contains a general description of electric automobile appliances.

No. 4778 describes the Edison carbon incandescent lamp.

No. 4768 the polyphase maximum-watt-demand indicator.

EMERY WHEEL MACHINERY.—Joseph T. Ryerson & Son, Chicago, have put upon the market a line of grinding machinery which is well and fully described in a new catalog, 16 pages, 9 x 11½ inches. The list includes buffing lathes, knife grinders, surfacers, water tool grinders, bench machines, etc.

MUSEUM OF SAFETY

Opened in New York—Medal for Steel Corporation.

The gold medal of the Travelers Insurance Co. for the corporation which has done the most for the protection of its employes from death and injury, was awarded by the committee of judges to the United States Steel Corporation in connection with the formal opening of the American Museum of Safety in the Engineering Societies' building, West Thirty-ninth street, New York, Monday evening, Nov. 21. Vice President W. B. Dickson received the medal in behalf of the United States Steel Corporation. The Scientific American gold medal for the most efficient safety device invented during the past three years and exhibited at the museum, was awarded to the Safety Scaffolding Co. of New York. Its exhibit is a scaffold which may be raised and lowered with safety, and by which the workmen are safeguarded from falling.

The new museum is the first of its kind in this country, and the fourteenth in the world. It has on permanent exhibition many devices of various descriptions, which are designed to minimize the chances of death and personal injury to employes while they are engaged in different pursuits.

BRITISH IMPORTS AND EXPORTS OF STEEL.

The British board of trade returns for October show further large increases, exports having increased by 11 per cent, and imports by 11 per cent. Under the head of raw materials and articles mainly unmanufactured, there is an increase of £69,140 in iron ore, scrap iron and steel, and for the ten months an increase of £1,115,539. In iron and steel manufactures, there is an import increase of £99,030, and for the ten months of £747,107. In iron and steel exports, the quantity was 394,920 tons, as compared with 391,909 tons a year ago, and there was an increase in value of £249,113. During the ten months, the total quantity exported was 3,829,399 tons, an increase of 363,288 tons, and the value was £35,671,452, an increase of £4,357,584. In pig iron exports, there is a small decrease both in tonnage and value, but a large increase for the ten months. The most notable increase is in galvanized sheets, of which 51,152 tons were exported, as compared with 47,707 a year ago. For the ten months of the year, the total was 498,429 tons, an increase of 99,543 tons over the total for the same period last year. In the value of tinned plates, there is an increase of £17,000, and for the ten months of about £600,000.

PROPOSED MINING LEGISLATION.

The state of Michigan is contemplating some important changes in its laws affecting iron and copper mining companies. Secretary Lord, of the Michigan state tax commission, proposes to have a law enacted requiring mining companies to file a report similar in its detailed character to that required of other corporations, the report to show their assets and liabilities, their ore reserve and the market value of the stock on the date of the report. In addition he proposes that the measure shall authorize the tax commission to direct the College of Mines to investigate the ore reserve of any mine and verify the report made by the owners. It is his opinion that such a report will be of more real use in getting at the actual assessable value of these properties than any expert commission report, pointing out that the latter would serve but one year. His law, as proposed, he states is along the line of the Minnesota act.

COAL AND COKE SHIPMENTS.

The statement of coal and coke shipments originating along the lines of the Pennsylvania Railroad Co. east of Pittsburg and Erie for October and for the first ten months of this year shows:

For October: Anthracite coal, 1,051,279 tons, a decrease of 108,929 tons; bituminous coal, 3,729,742 tons, an increase of 252,098 tons; coke, 967,089 tons, a decrease of 303,185 tons; total, 5,748,110 tons, a decrease of 160,016 tons.

From Jan. 1 to Oct. 31: Anthracite coal, 9,090,556 tons, an increase of 5,384 tons; bituminous coal, 34,050,735 tons, an increase of 2,340,237 tons; coke, 11,159,102 tons, an increase of 1,735,199 tons; total, 54,300,393 tons, an increase of 4,080,820 tons.

ENGINEERS INCORPORATED.

The Wilkinson Steam Engineering Co., 9 Pine street, New York, whose incorporation was recently noted, advises that the company proposes to sell power equipment, boilers, engines, etc., and completely install such equipment. It also manufactures and installs smokeless furnaces, oil-burning furnaces and fuel economizers, under the Wilkinson patents. Its manufacturing is done under contract.

TAX LAWS

Will Receive Consideration by Pennsylvania Legislature.

Harrisburg, Pa., Nov. 28.

The Pennsylvania state legislative commission in charge of the consideration of present corporation tax laws will resume its meetings this month and prepare the final report to the general assembly, which will meet on Jan. 3, 1911.

The report of this commission, which will outline such changes as it may deem necessary, is being eagerly awaited in the iron and steel and allied trades because of some changes which are rumored as possible. The old effort to have capital engaged in manufacturing, which is now exempt from taxation, made subject to a tax of 5 per cent, is being renewed by the granger element, but if it is recommended there will be an earnest effort made to defeat it.

One of the changes in laws which it is possible may be made will be a tax on gas companies to place them on the same basis as electric companies, which now pay a state tax.

CIVIC FEDERATION MEETING.

The eleventh annual meeting of the National Civic Federation will be held Jan. 12, 13 and 14, in New York City. The state councils, organized by the federation during the past year to promote the unification and co-ordination of state and federal laws, will hold their first national meeting in conjunction therewith. In addition there will be special meetings of the various departments of the federation. The important topics of the hour, in which the federation has been especially interested and will will be considered, are: Regulation of corporations and combinations; regulation of railroads and municipal utilities; compensation for industrial accidents; arbitration and conciliation.

CAPITAL INCREASE.

The Akron Belting Co., Akron, O., whose recent increase of capital to $200,000 has been noted, advises that this was merely a transfer from surplus account to fixed capital in order to keep the money in the business, and there was no stock for sale. While the company has been adding a few extra machines from time to time, it does not expect to erect any additional buildings.

The Autogenous Welding Devices Co., St. Louis, has increased its capital stock from $5,000 to $10,000.